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## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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## TURBINE BOATS.

The latest information about what is being done with the turbine engine on vessels and what developments may be expected before long was given recently by the Hon. Chas. Parsons in his address as president before the Institution of Junior Engineers.

"The first vessel of larger size than the Turbinia to be fitted with steam turbine machiney is the torpedo boat destroyer Viper, and a similar vessel for Messrs. Armstrong, Whitworth & Co.

"These vessels are of approximately the same dimensions as the 30-knot destroyers now in her majesty's service, but have slightly more displacement. The boilers are about 12 per cent. larger, and it is estimated that upward of 10,000 horse-power will be realized under the usual conditions as against 6,500 with reciprocating engines.

"The engines of these vessels are in duplicate. Two screw shafts are placed on each side of the vessel, driven respectively by a high and low pressure turbine; to each of the low pressure turbine shafts a small reversing turbine is permanently coupled for going astern, the estimated speed astern being 15½ knots and ahead 35 knots; two propellers are placed on each shaft.

"The latter of these two vessels has commenced her preliminary trials and has already reached a speed of 32 knots. The manipulation of the engines is a comparatively simple matter, as to reverse it is only necessary to close one valve and open another, and owing to there being no dead centers, small graduation of speed can be easily made.

"As regards cross-channel boats, the turbine system presents advantages in speed, absence of vibration, and, owing to the smaller diameter of the propellers, reduced draught.

"As an instance, a boat 270 feet length, 33 feet beam, 1,000 tons displacement, and 8 feet 6 inches draft of water could be constructed with spacious accommodation for 600 passengers, and with machinery developing 18,000 horse-power; she would have a sea speed of about 30 knots, as compared with the speed of 19 to 22 knots of the present vessels of similar size and accommodation.

"It is perhaps interesting to examine the possibilities of speed that might be attained in a special unarmored cruiser, a magnified torpedo boat destroyer of light build with scanty accommodation for her large crew, but equipped with an armament of light guns and torpedoes. Let us assume that her dimensions are about double those of the 30 knot destroyers, with plates of double the thickness and specially strengthened to correspond with the increased size; length 420 feet, beam 42 feet, maximum draft 14 feet, displacement 2,800 tons, indicated horse-power 80,000; there would be two tiers of water tube boilers; these with the engine space, coal bunkers, etc., would occupy the whole of the lower portion of the vessel, the crew's quarters and guns would be on the upper decks. There would be eight propellers of nine feet in diameter revolving at about 400 revolutions per minute, and her speed would be about 44 knots.

"In the case of an Atlantic liner or a cruiser of large size, turbine engines would appear to present some considerable advantages. In the first place they would effect a reduction in weight of machinery, and some increase in economy of fuel per horse-power developed, both thus tending either to a saving of coal on the one hand, or, if preferred, some increase in speed.

"The advantages are, however, less pronounced in this class of vessels, on account of the smaller relative power of the machinery, and the large quantity of coal necessary for long voyages, but the complete absence of vibration at all speeds, not to mention many minor considerations of saving in cost and reduced engine room staff, are questions of considerable importance."

## THE GULF AND RIVER ST. LAWRENCE.

From Montreal at the head of ocean navigation, to Quebec, may be termed the St. Lawrence river; and from Quebec to Point de Monts, the Lower St. Lawrence. The Gulf of St. Lawrence thence extends to Cabot Strait, between Cape Breton Island and Newfoundland. It opens into the ocean by this strait, which has a width of 65 miles and a depth of 250 fathoms; and by Belle Isle Strait which has a width of 11 miles and a depth of 30 fathoms.

The area of the gulf is traversed by a deep channel which runs from the mouth of the St. Lawrence past the Gaspe coast, and crossing the open Gulf to the north of the Magdalen Islands, passes out through Cabot Strait. Thence it continues south-eastward, dividing St. Pierre bank on the north from Banquereau and Misaine bank on the south, till it reaches the edge of the deep Atlantic basin. A branch from this channel also runs for some distance into the north-eastern arm of the Gulf, towards Belle Isle.

The depth of this channel increase from 150 fathoms at the mouth of the St. Lawrence to 250 fathoms in Cabot Strait. It forms the main avenue by which the tides of the Alantic enter the Gulf and travel across it to the mouth of the St. Lawrence; whence they continue with ever increasing height to Quebec. Above Quedec the tide is still felt as far as Three rivers.

A TRADE secret decision has recently been handed down in one of the German courts, which possesses considerable interest. The foreman of a factory invented a substance which was used by his employer in finishing rustling velvet. The foreman imparted the composition of this substance to other makers, and was sued by his employer and in the lower court was found guilty. The defence was that the foreman had only parted with his own invention which was his intellectual property. The case was appealed and was dismissed on the ground that the foreman was employed by the firm, and his invention was only a part of the service which he owed to his employer and only an employee would be trusted with experiments which would lead to such an invention. On account of the facilities which his position offered he was enabled to make an invention which an outsider would not have made, and that he made it in consequence of his employment, for which he was duly paid. The court held that when he imparted his secret to strangers he violated the German law for "the suppression of base competition."

## MOVEMENTS OF FISH IN RELATION TO TEMPERATURE AND DENSITY OF THE WATER.

The Canadian Department of Marine and Fisheries says that it is probable that the temperature and density of the water and the direction of the currents, may have important bearings upon the movements of fish, which as yet are imperfectly understood. This opinion is held by the countries bordering on the North Sea; and the information afforded by the investigation of the movements and other characteristics of the water, are there used as a basis in arriving at the reasons for the distribution and migration of fish at different seasons. This information has its chief application in the North Sea to the herring fishery; and yet a practical return is expected for the outlay which is made in obtaining it; and the investigation is of such importance that arrangements are being discussed for international co-operation amongst the countries bordering on the North Sea in carrying it on. In our fisheries, the cod and mackerel have a greater importance relatively than the herring; which would warrant the expenditure of large sums in proportion to increase the catch by such investigations.

As an example of the importance of knowing where cod are to be found, and why they prefer one region to another in different seasons, it may be mentioned that in 1896 fishing schooners were returning from Labrador in September with half cargoes, while within the Gulf we found on the surveying vessel that cod was everywhere abundant throughout the summer on the 30 and 40-fathom banks, which no schooners were taking advantage of.

It is held by fishermen that fish are never caught while the water is clear; and its clearness must have some relation to physical conditions which could be ascertained. It is also known that the cod are caught in shallower water in the spring, and further from shore as the season advances. This may depend more directly on the movements of the herring or capelin which they follow; but these fish may themselves be influenced in their movements by the temperature or other characteristics of the water, which may differ at different times. The depth at which the layer of coldest water occurs in the Gulf of St. Lawrence, found between 30 and 50 fathoms in the summer season, may have a bearing in this connection; as the fish have usually a preference for cold water.

It may also be noted that at the greater depths of 150 to 250 fathoms the bottom, as shown by samples brought up by the anchor, is soft mud from brownish-blue to slate color; and the marine life there, judging by such specimens as came up, consists chiefly of sea-pens and other stalked creatures, which root themselves in the muddy bottom. There does not therefore appear to be at these depths much food of an inviting character for fish. An examination of such conditions might well prove useful, in view of the large annual value of the Canadian fisheries.

THE recent trials in British waters of the torpedo boat destroyers Viper and Cobra have now been gone over by engineering authorities, and it seems that these tests have not only made more apparent the advantages already conceded to the turbine engine, but have disclosed others almost equally great. The Viper, on her builder's trials, developed something more than 35 knots an hour speed; that is more than 40 statute miles. Then she was turned over to the British government, and an elaborate system of tests was begun. With a third greater load, with decreased steam pressure and in rough weather she maintaimed an average of 34.25 knots in repeated runs over the measured mile. She also made a three hours' run of remarkable swiftness, but the exact figures for this have not been made public.

## CHICAGO.

*Special Correspondence to The Marine Record.*

Grain freights rule firm at 2 cents on corn to Lake Erie ports, and 1½ cents to Port Huron.

Halvor Michlion and John Gruda, of Chicago, have sold the schooner C. Michlion to Samuel Martin, of Racine, for $1,800.

The steamer H. E. Packer has had her repairs completed and is out of the Chicago Ship Building Co.'s dock at South Chicago.

The Graham & Morton Trans. Co.'s steamer Mary, was in one of Miller Brothers' drydocks and received a new Trout wheel, which they expect will give her her old-time speed.

The steamer Hesper, which grounded on Washington street tunnel last week, after unloading, went to Manitowoc and was put into Burger & Burger's drydock for an examination and repairs if necessary.

Capt. Peter Barry has put a upper deck on the steamer Robert Burke, which makes it more pleasant on the boat and gives those of the passengers who choose the upper deck a better view of the drainage canal when going up and down it.

The east draw at the Erie street bridge in the North branch of the river, is being cleared out so as to make a double channel at that point. The old sunken dredge of the Green Dredging Co. is being raised, and it and the old steamer Era will be removed.

The general superintendent of the Chicago and Northwestern railroad has notified the owners and managers of steam vessels and tugs which suffered delay by the blockade of the north branch of the river Saturday night, to send their bills to him and they would be audited.

Navigation on the drainage canal will be permitted in a few days. A couple of weeks ago the sanitary board passed an ordinance prohibiting all passenger craft from plying on the channel. Second thought has brought a change of views on the subject, hence the announcement to the above effect.

A survey was held on the Illinois Central railroad bridge at the mouth of the river, which was recently damaged by collision of the barge Miztec, in tow of a tug of the Great Lakes Co. The surveyors found that the structure is damaged $400. The towing company will make the repairs with its own men.

The excursion steamer Sailor Boy which went ashore off Lincoln Park, was released and taken to Miller Brothers' drydock, where an inspection was made, and it was found that she had not received any damage. She was immediately put in commission again between her dock at the foot of Wabash avenue and Lincoln Park.

The steamer Hesper, coal laden, in attempting to go up the South branch Friday morning, without a tug, went on Washington street tunnel. She went on at 1:15 a. m. and and was not released until noon, as her master refused to take a tug. The harbor master then sent the tug Dickinson to her, and she was soon removed and went to her dock.

The steamer Rand caught fire as she lay at Francis Beidler's Lumber Co.'s dock at Throop street, Friday morning. Her engine room was burned out and her cabin and considerable other wood work was destroyed and a portion of her cargo of lumber was damaged slightly. The fire boat Geyser and the tug Andrew Green assisted the Rand's crew in putting out the fire. The damage is estimated at $2,000.

The drainage board and city engineer find that most all the new rules for navigation of Chicago harbor, as prepared by assistant city engineer Wilcox, are impracticable, and that others conflict with the United States Steamboat laws in regard to signals on navigable streams. So much work is necessary in order to straighten out Mr. Wilcox's code that it was determined to postpone the whole project of new rules. The city council has now taken a vacation until September and at its next meeting the drainage board will also announce a vacation. When the rules are finally prepared the tug and vessel interests will be given a hearing and the council will then adopt them.

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JAMES J. HILL, the railroad king, went to New York last week to meet Mrs. Hill, who is returning with a party of friends from Europe. They will make the trip from the metropolis to Duluth on Mr. Hill's recent purchase, the steel steam yacht, Wacouta, the largest, finest and costliest craft of the kind ever brought to the lakes. At Buffalo the salt water master and crew will leave the yacht and Capt. George Minar and crew of lake men will take their places. The public will get some idea of the size of this magnificent toy from the fact that she is longer than the steamer City of the Straits. Her home port will be Duluth.

## BUFFALO.

*Special Correspondence to the Marine Record.*

The drop in Lake Superior rates was followed by talk on the part of the shippers of reducing the rate to Lake Michigan, and a change similar to that made on the upper lake is talked of.

Capt. Fred Hart, who resigned the command of the Bulgaria a few days ago and took the steamer North Star is now in charge of the North Wind, which is to be his new command. Capt. Hartman, formerly of the North Wind, is in charge of the North West.

The steamer Arabian, Capt. Oliver Patenaude, reached Montreal from Duluth, on Monday. She passed the Soulanges canal, drawing thirteen feet of water. The steamer's time from Montreal to Duluth and return, fifteen days and twenty hours, is said to be the fastest on the record for the round trip.

Inquiry is being made by the Buffalo local inspectors of steam vessels into the cause of the collision between the tug Acme of the Great Lakes Towing & Wrecking Co. and the government steam yacht Gen. John M. Wilson. The collision occurred in the harbor a few days ago owing to a mix up in signals.

Going rates for coal are straight 50 cents to Milwaukee and Chicago and 40 cents to Duluth. A further reduction is not anticipated, as vesselmen have to meet heavy expenses this season, and it should be unprofitable to handle the cargo at lower rates. Furthermore, takes away the necessary percentage for safe carrying.

The laborers working on the new breakwater struck for an advance of five cents an hour on Saturday. They were employed by Hughes Bros. & Bangs, and had been receiving fifteen cents an hour. The contractors refused to raise their wages to 20 cents, and discharged the men. New men will be hired and it is believed that no delay will be caused on the work.

The worst accident that has occurred in the vicinity of Tonawanda, took place last Monday evening, when the tug William H. Gratwick of the Great Lakes Towing Co., capsized and fireman Louis Herst, and James Parker, the 17 year old son of Mr. and Mrs. William Parker of South Niagara street, were drowned. Parker went out on the tug for the ride only.

In the selection of Capt. Hartman to command the North West, the traveling public will find a polite and refined man, who commands everybody's respect, and also a tried and trusted man to have command of the magnificent steamer, North West. His many friends speak very highly of Capt. Hartman and are pleased to see him promoted to his high and responsible position.

Several changes of masters in the Western Transit Line are announced. Capt. John Davis, late of the steamer Chicago, will hereafter sail the steamer Boston; Capt. Henry Murphy from the Montana to the Chicago; First Mate Frank Johnson of the steamer Mohawk is appointed master of the steamer Montana. Capt. Frank J. McCabe, who formerly commanded the steamer Boston, is ill at his home.

E. B. Guthrie, the engineer of the Grade Crossings Commission, who was City Engineer at the time when the subject of excursion docks was last discussed by the city officials, and who is more familiar with the local conditions that make a change in the location of the landing place of the excursion boats imperative than probably any one else in Buffalo, agrees with the News that something needs be done at once and that the best thing to do would be to provide suitable accommodations for excursion boats and passengers at the foot of Genesee street.

The Erie canal by its neglected condition, has already lost a great amount of commerce to the state. It is now not only unable to retain, even its present traffic, but it offers no inducements for the location of new industries along its line. It will be only by most active and long continued effort that the canal can be saved. The work must be taken up at once, not only to fight the enemies of the canal, but to arouse its friends, and it must be continued without cessation until the question of canal improvement on adequate lines has been finally submitted to a vote of the people.

The superintendant of the state's fish hatcheries reports that much satisfactory work was accomplished the past year. Application for fish received numbered 1,325. Of these 1,253 were filled. This record exceeds by 220 applications the number received in any previous year. During the year 17,598 cans of fish were sent out from the hatcheries. Advices received by the Department from people in the northern counties or Adirondack region, indicate that if it were not for the planting of trout by the State, the waters of these localities would be destitute of that specie.

There is no change in the coal freight situation, but rates may be said to be weak, for there is rather more tonnage than is wanted for the present. Freight rates ruled since my last report: Chicago, 65 cents; Milwaukee, 60 cents; Duluth, 40 cents; Waukegan, 65 cents; Racine, 65 cents; Marquette, 45 cents, Fort William, 50 cents; Toledo, 40 cents; Ashland, 40 cents; Sheboygan, 70 cents; Depere, 60 cents; Houghton, 45 cents; Portage, 45 cents; Green Bay, 60 cents; Lake Linden, 45 cents; Port Huron, 40 cents. Lake shipments show 77,000 tons for the week, nearly all of which was anthracite, Chicago taking 27,000 tons; Milwaukee, 20;000 tons, and the rest divided between miner ports except 10,000 tons to Duluth-Superior.

Final papers have been filed in the customs office, showing that all investors in the Maytham Towing & Wrecking Co. had formed a joint stock company. The capitalization of the company is $400,000. Capt. Charles Maytham is president and manager and W. D. Ingersoll is secretary and treasurer. Mr. Ingersoll is an expert accountant and retains liberty to attend to his established business in this city. The company has 25 tugs in commission, distributed as follows: Chicago 6, Duluth 5, Soo 2, Escanaba 1, Ashtabula 2, Erie 1, Buffalo and Tonawanda 8. The company contemplates placing 3 tugs at Cleveland in the near future, also tugs at other ports.

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## DULUTH—SUPERIOR.

*Special Correspondence to The Marine Record.*

Grain freights are still dropping and charters were made on Tuesday at 2 cents for wheat to Buffalo.

It is reported from Oregon that the longshoremen on every grain dock in Portland have gone out on a strike. About 150 men are concerned.

Frank Bagley of the steamer William Chisholm, broke his leg at Duluth Monday and was taken to St. Luke's hospital. His leg was caught between the fenders and terribly mangled. His home is in Cleveland.

Collector of Customs Willcuts, of Duluth, has fined the steamer Osceola $200 for running too fast through Island channel in St. Mary's river. This action was taken upon the report of the revenue cutter Morrill.

The Great Northern railroad, or at least Mr. James J. Hill, which is the same thing, has recently established shipbuilding works at New London, Conn. At this place they purpose building boats for the Pacific trade.

Forty million feet of logs which have been hung up on the St. Louis river about 15 miles above Cloquet, have been released after two unsuccessful attempts, and floated down the river, where they will be immediately sawed up into lumber.

The lumbering interests in the Cass Lake locality are in the best of conditions and the local mills are running to their utmost capacity to fill the demands made on them. The Scanlon-Gipson Co. are shipping 200,000 feet a day to the states of Iowa, Nebraska and Kansas.

Capt. Charles Weeks declares that the lumber rate to Lake Erie ports is still $2.25, and he won't hear of anything else. "An attempt has been made," said the captain, "to bring the rate down to $2.00, but they can't do it. I will tell you one thing, though, and that is that Duluth can give vessels better dispatch at her elevators and ore, lumber and coal docks than any other port on the lakes."

In the suit of Wellington R. Burt against the Rockefeller syndicate, in which the plaintiff claimed that unfair methods were being used to monopolize the iron ranges, a settlement has been reached whereby Mr. Burt is to get a minimum of $50,000 a year from his property, which is under lease to the syndicate. Mr. Burt alleged that the syndicate was not making an honest effort to develop the property.

It seems quite probable that the new steamer Charles R. Van Hise, of the Bessemer fleet, recently launched at the West Superior shipyards, will be held here. The steamer is at present in the yards at West Superior, and it was stated that she would probably remain there. The owners have appointed a master for the boat, but he has not as yet reported, and no orders have been received as to loading the vessel. The trial trip of the Van Hise was made under the supervision of three of the captains of boats that are now laid up in the harbor here on account of the ore rate fight. Everything went off successfully.

"We will have contracts for at least two more new boats and probably more," said President A. B. Wolvin, of the Ship Building Co., this morning. "This, together with the work which we have on hand now, will keep us busy all the winter." Mr. Wolvin does not say when the contracts will be let, but it is understood that it will not be very long. This means that a large number of men will be employed at the barge works throughout the winter. The new boats will not be started until late in the fall, so that they will be ready for launching early in the spring. The two schooners which are now on the stocks will probably be finished late this year. An effort will even be made to get them off the stocks before the season closes. With two new boats assured and others in sight, Mr. Wolvin says the prospects are very bright for employment during the winter.

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A SPECIAL meeting of the board of directors of the Chamber of Commerce was held on Wednesday, to make arrangements for the entertainment of the House committee on rivers and harbors and the Senate committee on commerce which will be in this city Aug. 8 and 9. Vice-president E. P. Williams presided at the meeting, in the absence of President Ritchie. It was decided to appoint a special committee upon entertainment for that occasion. E. P. Williams, H. G. Dalton, Harvey D. Golder, D. Z. Norton and W. R. Woodford were chosen as that committee. The committee will prepare a programe for the entertainment of the guests. A reception committee will be announced. The members of the two committees will reach Cleveland the evening of Aug. 8, and will spend the greater part of following day in the city. While here they will be shown the harbor and the business and manufacturing sections of the city.

## CLEVELAND.

*Special Correspondence to The Marine Record.*

Capt. Clint G. Ennes has been appointed master of the steamer Empire State.

The steel steamer Harvard reached Ashtabula on Tuesday afternoon, with 6,822 tons of ore from Duluth. This is her second trip. Capt. Robt. Jones is her master.

The coal rate from Ohio ports to Milwaukee has settled at 50 cents, a number of charters being made at that figure. The shippers had no trouble forcing the rate down the last 5 cents and 50 cents is all they are offeirng to all the leading Lake Michigan ports.

The ore freight market is quiet, but rates hold steady at $1 from the head of the lakes, 90 cents from Marquette and 70 cents from Escanaba. There has been a big falling off in shipping orders during the past week. Coal men are getting a fair supply of tonnage at 40 cents for Duluth and 55 cents for Milwaukee.

It is announced that the Princeton, now being built in the shipyard at Lorain for the Carnegie Co., will be launched on Friday, July 27, at 11 o'clock. The boat will be christened by the liberation of pigeons, as was done when the Lafayette was launched. The Princeton is 476 feet long and built for the ore carrying trade.

Shippers of ore, who have been taking a great deal of unchartered tonnage of late, have, many of them, withdrawn from the market, taking care only of their contract tonnage. This movement was occasioned by the receipt of advices from the head of the lakes that the movement of ore down the lakes must be curtailed, or they would be ahead of their allotment.

The wooden steamer Edward Smith No. 2 caught fire Tuesday night five miles off Avon Point, and now lies a total wreck upon the reef near to that point. Had the fire not been so fierce she could have been within the breakwaters here in less than an hour. The chief feature regarding this casualty is that no lives were lost either from the steamer or her consorts.

No change was seen Tuesday in the lake freight situation, especially as it refers to the coal rates. The shippers are getting about all of the tonnage they care to handle, especially since the rate was dropped and the war ended. The demand for boats, therefore, is slightly less than the supply. There is, however, a strong feeling that the former rate should be maintained all round.

The Carnegie Steel Co. left Pittsburg Tuesday, July 17, for an inspection of some of the connected properties of the Carnegie Co. At Conneaut, O., a new dock equipment for ore handling, including the Hulett unloader, was seen at work. At this port the party took the North West on Wednesday for Duluth, and thence by special train to the Oliver Iron Mining Co.'s properties on the Mesabi and Vermillion ranges. On the return trip the yards of the American Ship Building Co. at Lorain, O., will be visited and the party will be present at the launching of the Pittsburg Steamship Co.'s new steamer Princeton, on Friday, July 27.

Mr. O. W. Blodgett, of Bay City, managing owner of the steamer Edward Smith, has come here to look after the wreck, and it is expected that the representatives of the underwriters will be here to-day, when it will be decided how the steamer shall be raised. The steamer, which was consigned to Fairport, will probably be brought here to discharge her cargo, after which she will be placed in drydock for survey and repairs. The wrecked steamer is one of the best lumber carriers on the lakes. Capt. Alfred Mitchell, who brought her out, superintended her construction for the owners. It is understood that the firm of Smith, Davis & Co., Buffalo, had $40,000 insurance on her, while her cargo of 1,300 tons of ore was also fully covered

The attention of vessel masters has been called by Colonel Jared A. Smith, U. S. engineer of rivers and harbors, to the fact that tying boats to the breakwater is not only forbidden, but is in direct violation of the federal statutes upon that subject. As a proof of this fact he calls their attention further to section 4 of the statutes governing rivers and harbors as approved March 3, 1899. It has been generally understood that the boats moored at the breakwaters, east and west, had the sanction of the local engineer to do so. It now appears that they had not. Col. Smith says it is not his intention to take any drastic measure to correct this abuse, but he has called the attention of the masters and the owners to the fact that the breakwater was put there for their protection by the government and should not be abused or misused.

Six very large cargo and passenger steamers are now building in American shipyards. The two Pacific mail steamers building at the yard of the Newport News Ship Building and Dry Dock Co. are each 550 ft. long, 63 ft. beam, and 40 ft. deep. They will have a displacement of 19,000 ons. The two large international liners building at the Cramps, Philadelphia, are somewhat large than the Pacific Mail ships, being 560 ft, long, 60 ft. beam, and 42 ft. deep. They will each have a displacement of 21,000 tons. The two Pacific steamers just begun by the Eastern Ship Build-Co., New London, Conn., for James J. Hill, of the Great Northern Railroad, are to be 625 ft, long, 73 ft. beam, and 54 ft. deep to the strength deck. These vessels will have a displacement of 34,000 tons. They are, therefore, 50 per cent. larger than the Pacific Mail and International liners building at Philadelphia and Newport News.

## DETROIT.

*Special Correspondence to the Marine Record.*

The steamer S. J. Macy docked Tuesday for a new wheel and general repairs.

The unusual volume of marine business this year is an unmistakable indication of the prosperity abounding all over the country. During the fiscal year 7,759 vessels passed through the Weitzel lock, and 9,765 through the Poe locks at the "Soo."

Reports from the passenger agents of the various lines sailing out of Detroit show that lake trips are more popular than ever before and that in order to get staterooms and accommodations it is necessary to place orders for several days in advance. That is to say order your berths, and, or, staterooms.

Lumber shippers are feeling around for an opening in the market, but they find the owners shut up like clams, as they have been since very early in the season. The owners want a certain rate, and they are holding off their tonnage until they get it. The shippers may tire of the fight one of these days and pay the rate.

C. Y. Dixon, United States Engineer in charge of the channel work at the mouth of the Detroit river and in the vicinity of Amherstburg, advises masters of steamers to keep to the westward of the dredges working along Bois Blanc Island, and to keep on the ranges at Elliott's Point. They will then avoid any obstructions caused by dredging, he states.

The sailing yacht Iris collided with the tow of the steamer Garden City, in the St. Clair river on Saturday, and was badly wrecked, but the crew escaped injury. The yacht became fouled in the towline in some manner, and was dragged nearly a mile down the river before she was shaken loose. The crew of the Iris jumped overboard when they saw their danger, and were picked up by some men in a small boat.

The steambarge Atlantic, which was burned on the Detroit river last season, is being rebuilt at the Bay City drydock. When the work of tearing away was started she was found to be quite ripe in some places, and when she comes out the coming fall there will be little of the original craft remaining. She will be entirely new from below the water line up. As the rebuild is to be a perfectly thorough one in every way nothing will be left undone to put her in first class condition.

One of the best known masters on the lakes, and probably the longest in continuous service as master, was Capt. Albert Stewart, who died at his home at Detroit last Thursday evening of a complication of diseases, at the age of seventy-six. He left a widow and three grown children, two sons and a daughter. One of his sons, Capt. F. G. Stewart, is master of the Northern liner North Star. The veteran sailor began his apprenticeship on lake schooners in the neighborhood of 1840, serving with famous men of those times, who have long since passed away.

The U. S. S. Michigan left Detroit a day or two ago, on her annual cruise with the Michigan Naval Reserves. When abreast of the Grosse point light-house a collision with an approaching schooner seemed imminent, and an order to port the helm was given. The answer of the quartermaster, "The helm is hard a'port, sir," made it apparent that something had gone wrong with the rudder, and the steamer was backed until she fetched up in the mud on the Canada side. On examination it was found that the rudderstock, which it is said has been in use for fifty years, had become twisted and would have to be replaced.

George Y. Wisner, Esq., of the deep waterway commission, believes that New York state will never build her proposed $60,000,000 barge canal. Both Buffalo and the metropolis are said to fear somewhat the possible effect it might have on cutting down the business and aiding interior cities. The deep waterway, however, backed by the government, if it is built, will not be influenced by local New York schemes, and will in all likelihood prove the death of the Erie canal. The latter's usefulness will be over on the completion of the deep waterway. The canal to the coast is not yet built, however the project may turn out later.

The state board of public works, of Ohio, has adopted a resolution declaring successful the experiments with electricity as a means of motive power for the propulsion of canal boats, and authorizing Thomas N. Fordyce, representing the Westinghouse Co., to construct a plant to supply power to propel boats between Dayton and Cincinnati, and between Dayton and Toledo. He is allowed two-and-one-half years to complete the former work and four years additional for the latter. The contract is said to preclude the possibility of using the canals for railroad transportation purposes by the company represented by Mr. Fordyce.

A tug men's union has been formed in Detroit. Every port on the lakes has had such a union all the season except Detroit, and the tug captains, engineers and firemen have resolved to share in the benefits obtainable by organization. Last Saturday the first meeting was held, 30 charter members signed, each paying $3 toward the securing of a charter and other expenses. President Burns is expected from Duluth to perfect the organization and grant a charter from the international association. Capt. Charles Jarrait is the leader of the new organization and is now president. On the permanent organization he will probably be re-elected president. Rigid rules are enforced by the tug unions, and no captain will work with a scab engineer or vice versa.

Michigan shippers will be the gainers in a war of rates which broke out this week between the Goodrich Transportation Co. and the New Barry Line to Muskegon. The former company will enter the field with a tariff to get the business, it is said, regardless of price. The steamer Atlanta, which has been run as a day boat from Chicago to Grand Haven, will be taken off that run Friday next and put on the west shore. The schedules will be re-arranged to give four steamers a week from Chicago to Menominee and three a week to Escanaba. The two boats on the line between Chicago and the east shore will stop at Grand Haven both ways from Muskegon. This puts the Goodrich Line in fighting trim. Passenger rates will not be disturbed as it is said the Goodrich boats are running full at the old prices.

Colonel Lydecker, Corps of Engineers, U. S. A., states that he has received the approval of the Secretary of War of the project to widen the Little Rapids section of the Hay Lake Channel and that tenders for doing the work will soon be advertised for. The project calls for the widening of the channel from 300 to 600 feet at the upper end to intersect with portions at the lower end that now have a width of 600 feet, making a minimum width of 600 feet clear through to the foot of Hay Lake. The entire Hay Lake channel will also be deepened sufficiently to provide a depth of twenty feet at the ordinary low stage of water instead of the mean stage. This will require the lowering of the grade about two feet, which will give a twenty foot depth at low stage of the water. At present the actual depth is from 18½ to 19 feet. Probably some clearing out of the Old Lake George channel will be done. An examination of the channel will be made and if obstructions are found, they will be removed and the channel restored to its former condition. The projected improvements will call for an expenditure of about $250,000.

United States District Judge Swan filed, on Monday, a decision in the Florida-Roby collision case. The wooden steamers Florida and George W. Roby came together in a fog off Thunder Bay May 20, 1897, and the Florida went to the bottom. In the suit which followed Judge Swan held the two steamers equally to blame. The lost boat, which was under charter to the Lackawanna Line, had a load of package freight, the value of the insured part of which was $65,293, while the rest was valued at $6,026. The owners of the Florida also sued for the loss to them of the unexpired part of the charter, and the officers and crew for their personal effects. The Roby had been appraised at $60,000, or $11,000 less than the cargo value of the Florida, but anyway she could be held only for one-half the cargo loss under the terms of the decision. The question to be decided was which should take precedence in the settlement of the losses—the loss on the Florida's cargo or on the boat herself—and Judge Swan held that the cargo should be preferred and paid first, both being to blame, and as the value of both boats was not enough to pay the full loss on the cargo and for the loss of the Florida, damage to Roby, etc. The case was tried in February, 1898. Frank H. Canfield, of Detroit, represented the cargo; Harvey D. Goulder, of Cleveland, the Roby, and Shaw & Cady, of this city the Florida. The steamer George W. Roby is owned by Mr. W. H. Becker and others of Cleveland.

## FLOTSAM, JETSAM AND LAGAN.

Thomas Marks, a wealthy vessel and elevator owner at Port Arthur, Ont., is dead.

The strike of the ore handlers on the docks of the Lorain Steel Co. at Lorain, O., has been settled.

Ashland ore shipments for the past week were 91,033 tons, bringing the season's total to 1,067,667 tons.

The officials of the Canadian Government are making a new survey of the St. Lawrence river. A steamer has been charted for their work and will carry the engineer and his helpers.

The schooner Madcap foundered on Lake Ontario when off Glenoa Bay, Monday last. The crew escaped. The Madcap had a cargo of peas loaded at Deseronto for Kingston. The boat was owned Capt. Lachance of Kingston.

Folger Bros., of Kingston, have purchased the steel steamer Ramona from parties at Sault Ste. Marie for traffic on the St. Lawrence. She is a screw steamer, can carry 250 passengers and can, it is said, steam 18 miles an hour.

K. H. May, of Frankfort, Mich., has been put in charge of the affairs of the Ann Arbor Railway Co., at Manitowoc. He succeeds E. S. Lord, who has resigned. Mr. Lord will act as local agent of the Wilson Transit Co., of Cleveland.

Capt. L. S. Sullivan, Toledo, reports charters this week as follows: Schooner Badger, coal to Port Huron, 35c.; John Schuette, coal to Two Rivers, 70c.; J. S. Richards, pig iron, Elk Rapids to Buffalo, 75c.; George G. Houghton, hard wood, Charlevoix to Buffalo, on contract; Selkirk, coal to Detroit, 27½c.

J. G. Keith, vice president of the Lake Carriers' Association, is preparing a protest against the current in the Chicago river, caused by the opening of the drainage canal. In support of his position he is gathering statements from vessel owners, covering the damages they have suffered since the current was started. The main complaints are based upon the great increase in tug bills and the lessened capacity of vessels on account of the lowering of the water up the south branch. The decrease in cargoes over Washington street tunnel is said to be between 5 and 10 per cent. The increase in tug bills is over 50 per cent. It is likely that the protest will be sent direct to the Secretary of War.

## FORMATION OF THE LAKES.

There are no lakes in the Southern States except in Florida, which is comparatively new land more recently raised up out of the ocean depths and not yet thoroughly drained off, and some bayous or lagoons along the Red and Mississippi rivers, which are over-flows or tennants of former beds of those rivers. But lakes are very numerous in the Northern states and throughout Canada, being most plentiful in Minnesota, where they are estimated at from 5,000 to 15,000 Prof. Winchell, the state geologist, giving 10,000 as a conservative figure. Michigan follows as a close second, the range of estimates being about the same, but the state geologist has estimated that the number is less than 10,000. The contrast between no lakes in the South and many in the North, says the Detroit (Minn.) Journal, was very remarkable until observation showed that these lakes are all confined to the area that was covered by the ice during the glacial epoch, and investigation has demonstrated that they were all formed, with perhaps one exception, by that wonderful invasion.

The greater number of the smaller lakes are "kettle holes," dug out by torrents of water that poured down from the edges of the melting ice. The next larger number are in valleys that were scooped or ground out by the moving ice, and as the ice reached depths varying from a thin sheet at its southern edge up to 10,000 feet on the highlands of Canada, its power to "grind" the rocks must have been enormous. Such lakes are generally the longest in the direction that the ice moves, mostly from north to south. Lakes Chautauqua, Canadaigua, Seneca, Cuyuga and Champlain, in New York, are notable examples of this class of formation.

A third class of lakes are ponds shut up by surrounding moraines, or those occupying former valleys, the outlets of which were filled up by the "drift" of the ice. Lake Erie is a notable example of this last class of formations, it being only a large "mill pond," with an average depth of less than ninety feet. Nearly all of these lakes are much smaller than formerly, and many have become entirely extinct by being filled up by washings from the surrounding land, by marl deposits or grown over by vegetation. Probably every reader knows of lakes that are now being thus grown over. In the Champlain (ice melting) epoch all of our rivers were torrential flooded back and made temporary lakes, which were the origin of many of the smaller prairies of Southern Michigan, notably Coldwater and Girard in Branch county. As an example, the Kalamazoo river was nearly a mile wide in places; near Otsego, in Allegan county, it met an obstruction and for a time flowed southward to South Bend, where it united with the St. Joseph and flowed to the Mississippi through the Kankakee and Illinois.

Probably Lake Superior was the only one of the Great Lakes that existed before the glacial epoch. There is an outline of its northern shore near the close of the earliest, the eozoic era, and it appears as a complete lake all through the long paleozoic era. But in the great changes of the mesozoic era it seems to have got lost, and there is no trace of it at the beginning of the geonzoic era; but it is quite likely that it again appeared before the glacial epoch. Probably nothing but great valleys with large rivers, existed where the other four large lakes now are. The Helderberg limestone series that now constitute Mackinac island, and in places extend up now 200 to 300 feet, formerly extended both north and south much farther, completely separating Lake Huron valley from both Lake Superior and the great valley that now constitutes Lake Michigan. Before the ice age Lake Superior emptied into Lake Michigan valley some distance west of Mackinac island and flowed south through the valley now occupied by the Thames river via London, Ont., into the Erie valley, which was very broad, but the most shallow of all of these great valleys. A mighty river ran through this Erie valley in those days of torrential rains, but just before it reached the locality of Buffalo it turned north and emptied into the Ontario valley at its west end, near Hamilton.

The ice ground out all these great valleys much deeper than they were before, especially Michigan and Huron, carrying the material southward with the other drift. It receded or melted back from an east-of-south direction in the vicinity of Southern Michigan, of course filling all of these great valleys with water south of the melting line. As the ice covered the eastern end of the Ontario valley the water filled all of the west end of that valley and all of the Erie valley, making a vast lake that covered nearly all of Ontario, Canada, extending north to the Huron and west to Ypsilanti, on a line from there along the eastern side of the moraines or hills in Lenawee county to Pittsford, and so on southward to Fort Wayne, Ind., where it emptied southwest into the Ohio through the Wabash river. It is the sediment of that great lake that makes the rich soil that overlies all of Monroe and the south part of Wayne and the eastern part of Lenawee counties.

The southern part of Lake Michigan being thawed out at this time, its waters flowed through its old channel, the Illinois river. That Fort Wayne outlet was 795 feet above the level of the sea. As the ice melted back a little further it uncovered a pass between the valleys of the Shiawassee and Grand rivers that was only 755 feet above the sea—40 feet lower—so this great lake, now augmented by a part of Huron, for a time flowed across Michigan there, joined the waters of Lake Michigan, which make so vast a lake that it covered nearly all of the state of Illinois south to a line of hills that are a continuation of the Ozark mountains of southern Missouri.

The sediment from that lake gave to Illinois remarkably rich soils. The drift had filled up the former outlet of Lake Superior near Mackinac, and as the west end of that lake began to thaw out, its waters found a passage sonthwestward across Minnesota into the Mississippi. Thus all the waters of the five great lakes flowed to the Gulf of Mexico. In its thousands of years of southward moving the ice had ground down a good share of the Helderberg rock ridge of Mackinac, which was 715 feet above the sea, or another 40 feet lower. And so the Erie-Ontario lake flowed into the Huron on its north, Superior opened a new outlet down the St. Mary's river and all flowed through the straits in Lake Michigan and finally to the gulf as before.

At about the same period, as the ice obstructed the natural outlet of the great basin of Manitoba and northern Dakota and Minnesota, which had drained into Hudson bay, a vast lake was formed in that region much larger than the combined area of all of our present five great lakes, and this lake also emptied southward to the gulf through the Mississippi. What a mighty river that must have been then, and its present valleys shows that it was just such an enormous river. When the ice thawed back to Hudson bay that great lake, which had been named Agassiz, was drained away almost entirely, Lakes Winnipeg and Manitoba being only prominent remnants of it.

The ice continued to recede slowly (for it was many thousand of years in melting away), and as it melted eastward in Lake Ontario it opened the valley of the Mohawk and at Rome, N. Y., the water found a passage that was fifteen feet lower than Mackinac, and so all of these lakes turned that way and flowed through the Mohawk and Hudson into the Atlantic. This lowered Lake Michigan so it extended only to the region of the Kankakee, or only about seventy or 100 miles south of its present boundary. Now followed the greatest change of all. As the ice melted out of the St. Lawrence valley Lake Ontario drained down to about its present level, which is over 300 feet lower than the Mohawk passage. The drift had filled up the low passage between the Erie and Ontario valleys so that the lowest passage was that from Buffalo northward, and so the mighty waters of the upper lakes rushed headlong and created that grandest of objects in the world—Niagara!

The old passage from Huron to Erie via the Thames valley had been filed by the drift and so a new outlet was formed via the St. Clair and Detroit rivers. There is strong evidence that at some time the three upper lakes flowed to the St. Lawrence through the Georgian bay and Ottawa river, but the relative period when that condition existed has not yet been fully determined. The Niagara outlet drained the upper lakes to about their present levels and areas—Superior being 601 feet above the level of the sea, 1,008 feet greatest depth, 32,000 square miles area; Huron, 581 feet high, 802 feet greatest depth, 22,000 miles area; Michigan, 582 feet high, 868 feet greatest depth, 9,600 area, and Ontario, 247 feet high, 606 greatest depth, 7,500 area.

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IN "The Art of Warre," by Nicholas Machiavelli, dated 1560, and translated by Peter Whitehorne, at the end of the book the translator has added some original matter. Here is "How to write, and cause the same that is written to be read afar off without sending any message." "A captain, beseiged in any town or fortress unable to communicate without any letter, may, so far as light can be seen, and by day, as far as burnished glass can cast the sun on a hut or such like, may be descried—he having arranged with friends the order of signal—one or two lights being flashed, hidden or displayed again." What is this but the heliograph of the present day?—London Daily Chronicle.

## NOTES.

FOUR torpedo boat destroyers for the Russian Black Sea fleet will shortly be launched at the Franco Belgian shipbuilding yard at Nicolaieff. Four cruisers, 28,000 tons, and four transport vessels will also be added to the Black Sea fleets at an early date.

WHILE a machinist at a steel works in Homestead, Pa., was in the act of shrinking a steel band on a cylinder, which was covered with moisture, he struck the band, and a terrible explosion followed. The report was like the bursting of a big cannon. Pieces of the cylinder were scattered in every direction, causing a panic among the other workmen, besides severely injuring the machinist.

THERE has been so much talk about a coming steamer bigger than the Oceanic, so much doubt expressed, so many denials, that we consider we are doing no less than a public service in stating on the highest authority, says the Syren, that the keel of a larger steamer than the biggest on record has already been laid at the Queen's Island yard, Belfast, and will, we understand, be launched this year.

A LARGE Belgian shipbuilding company is being organized for the establishment of works at Hoboken, and it is stated that the king is one of the chief shareholder, while the commercial direction will be confided to Messrs. Marschall & Gerling, and the technical direction will be largely in the hands of the Vulcan Shipbuilding Company, of Stettin, who, it will be remembered, built the Kaiser Wilhelm der Grosse and the Deuthschland.

CHIEF CONSTRUCTOR HICHBORN reports 70 warships under construction or with designs in preparation, including twelve battleships, six armored cruisers, nine protected cruisers, four monitors, fifteen torpedo boats and seven submarine torpedo boats. The torpedo boat destroyers are of twenty-nine and thirty knots, and the torpedo boats of twenty-six, twenty-eight, and thirty knots. The submarine boat Plunger is under construction in Richmond, Va., and arrangements are being made for contracting for six additional sub-marine boats of the Holland type. The construction of the gunboat for the lakes has been suspended until Great Britain is heard from as to the armament each nation shall maintain in those waters.

GERMAN naval officers are usually taken from the same rank as in England. Before becoming a midshipman, or a sea cadet as he is called in Germany, the youth who intends to devote himself to the navy must be able to pass a satisfactory examination on the level to which a fifth form boy at an English public school has attained. His first year's service is spent in study and military excercises on shore, the study of the English language being a prominent part in his work. He is then placed on a training ship for a year, and after passing a satisfactory examination, he is removed to the Marine School for another year. The technical knowledge obtained here is then employed for two years at sea, and should the candidate for the naval profession prove himself competent, he is promoted at the end of these two years to the rank of lieutenant. During the first ten years of a German naval officer's career his income falls short of his expenditure by a sum of £500; that is to say, in addition to his pay he requires, on an average, £50 a year to keep him. In the British service the average expenditure of an officer, in addition to his pay, is £95 a year.

THE Navy Department, in case the desires of Rear Admiral Hichborn are agreed to, will, before the 1st of December, make the largest contract for increasing the Navy ever made in one year by this country. This contract will be for the construction of five of the largest battleships ever built by any government, six first class armored cruisers, which are themselves nearly equal in size to a first class battleship, and which will be the finest vessels of their description ever constructed by this Government, and three splendid protected cruisers. The Board on Construction of the Navy is now working on the plans for the three protected cruisers, and it is believed the details of these vessels will be finally settled in a short time. Tentative plans have been made which contemplate ships having a displacement of not less than 8,000 tons; a speed of 23 knots, and main batteries of eight or six inch guns, mounted in pairs. Most of the work will probably be given to Cramps, Newport News and the Union Iron Works, of San Francisco. None of the smaller yards are capable of building ships of such size as the battleships and armored cruisers proposed. The circular describing in detail the five battleships will be issued by the Navy Department in the very near future. It has been completed by the Board and only awaits return from the printers for distribution.

## CIVIL ENGINEERING.

The thirty-second annual convention of the American Society of Civil Engineers was this year held at London, England. The opening session was held July 2 with about 200 American members present. They were welcomed by Sir Douglas Fox; president of the British Institution of Civil Engineers. In his annual address President John F. Wallace said in part:

It has generally been understood that mathematical ability of a high order is a fundamental requisite to success in the engineering profession. This is not necessarily true, as it frequently happens that the person in whom mathematical ability of the highest order exists, is deficient in other essential qualities. While the successful engineer should be a good mathematician, should be a man of integrity, industry and resources, there are other qualities which can not be ignored. The engineer who constructs a bridge, no matter how carefully he may design and construct his masonry foundations and steel super-structure, would not be considered an engineer, in the true sense of the term, should he neglect the hidden vein of quick-sand, which might eventually cause the destruction of the entire bridge.

Among the underlying qualities necessary to the highest success in our profession are, the ability to accurately observe natural phenomena; a faculty of mentally picturing things in their proper relation to each other; good business judgment and sense; a careful study of business methods; tact, which to some men means so much and to others so little; personal loyalty, not only to the enterprise in which he is engaged, but also to his immediate superior; and above all, the engineer should not neglect the fact that "the proper study of mankind is man."

It is not the most expert bookkeeper who becomes the most successful banker or merchant, no matter how important carefully kept accounts may be to the success of a bank or mercantile business. It is not the surgeon who has the finest set of instruments, or even the greatest knowledge of their uses, who is necessarily the most successful. It is not the lawyer who has read the most law, but the one who can discriminate and apply his knowledge to the case in hand, who is the best jurist. So it is not the engineer who is the most expert mathematician, the finest draftsman, or who may design and calculate the most beautiful structure, who is most successful.

The true engineer of today is the one who, seeing a necessity arising in the onward march of civilization, can think out its solution, conceive a project, design the necessary works connected therewith, and carry out the scheme as a whole to a successful issue, at the same time convincing his fellowmen of the necessity for the work, the efficiency and economy of his design, and his own ability to accomplish the desired result.

In comparing the works of engineers, that engineer is the best who designs and constructs, results being equal, in such a way that the interest on capital invested, together with maintenance charges and operating expenses, are a minimum. It is certainly poor engineering to construct works so massive and with such a surplus of strength and solidity that the interest on the original amount invested far exceeds the cost of repairs, renewals and interest on the differently designed work which would perform a similar service.

In this I think the engineers of the Old World can learn from those of the New. On the other hand, in the construction of works of a permament nature, so as to reduce the cost of operation, maintenance or renewal, the New World can certainly learn from the Old. During the past century, however, the problems which have confronted the engineers of the Old and New Worlds have been vastly different. Works have been constructed in the Old World to meet existing and stable conditions; in the New World works have been provided to create conditions; consequently, it has been necessary for engineers in the New World to have not only vivid and correct imaginations, and to be able to judge of possibilities and future requirements, but to design and construct their works in such a way as to bring about the desired results with a limited amount of labor and capital.

It has been a question of choice between what was best or even most economical; the main question has been one of what it was possible to do under the circumstances. Frequently, it was a case of the engineer creating the circumstances. Conditions, however, are rapidly changing, and the engineer of the New World is following closely in the footsteps of the Old World engineer, and his works are gradually becoming more substantial and permanent.

The point I desire to make and emphasize is the importance and responsibillty of the engineering profession in relation to the advancement of civilization, and the fact that it is our duty, first, to fit ourselves as individuals in every possible way for the responsibility placed upon us, and, secondly that we should combine individual units in organization; that it is the duty of the engineer first to fit himself for his individual work, and next to combine with his fellow engineers for the strengthening and elevating of the profession.

## DERELICT VESSELS.

The question of "What to do with our derelicts" is one peculiarly suitable for international discussion, since all maritime nations are alike interested in ridding the ocean highways of a danger which the most careful seamanship is powerless to guard against. Syren and Shipping, London, makes some observations on the topic. Reefs and shoals, it says, are marked on the charts. They are stationary—or nearly so—and can be lighted and avoided. A derelict changes its position from day to day. Frequently a waterlogged hull drifts for weeks almost submerged, so that it can scarcely be seen by the lookout man even in broad day. At night it is better for the skipper of an ocean liner to keep his mind off derelicts altogether. It may be a good thing, then, for representatives of underwriters, owners and merchants of all countries to discuss whether some means cannot be devised for ridden the sea of these pests as speedily as possible.

To sink a derelict—especially if timber laden—is generally a difficult and dangerous job, which skippers prefer to leave to some one else to undertake. What is everybody's business is nobody's business, and at present no inducement, except a high-minded notion of performing a public service, is offered to captains to do this work. Could it not be arranged among the various governments to put a price on the head, so to speak, of each derelict, as that old English king did with the wolves? Why should not a skipper and his crew, and the owners as well, be compensated for destroying a public danger, as much as for performing a salvage? The question is: Who is to pay? If the conference will argue the matter out on these lines some substantial good may result.

## A SUBMARINE TELEPHONE.

That Messrs. Daly & Hannan are firm believers in the policy of securing for their dredging work the most modern devices in apparatus is evidenced, says the Ogdensburg News, not alone by the building of one of the largest dredges in the country, but in every detail of their extensive business.

They have recently secured for work on the shoals a new diving suit which is a model of ingenuity in every respect, and especially in possessing a telephone attachment which enables the diver to converse with those above with ease and distinctness.

This submarine telephone adds greatly to the safety of the submerged worker as well as saving him many otherwise necessary trips to the surface by being able to inform the men on the dredge of his every want and movement.

The calling of the diver was at one time one of exceptional daring and risk, and when it is taken into consideration that early divers did not have the aid of any artificial appliances for supplying air, their adventurous feats are truly remarkable.

The expensive diving dress at present owned by the Ogdensburg firm brings forcibly to mind the many successive improvements that have brought this useful apparatus to its present state of perfection since the days of the diving bell.

The importance of diving in such submarine work as dredging and repair work has only been fully developed within recent years.

Capt. Daly made a prolonged submarine descent in the modern contrivance purchased by the firm and was enthusiastic over the perfect manner in which all the new contrivances worked.

VICE ADMIRAL SIR WILLIAM KENNEDY, K. C. B., in his "Fifty Years in the Royal Navy," tells us that he twice underwent the operation of flogging, once for asking if the master's new born son had a stiff leg like his father; on the second occasion for throwing water over the same worthy's daughter in bed, mistaking her for her brother. Among his anecdotes is one of his dropping overboard to test the readiness of his men in emergencies. At Jamaica there was a regatta, and a boat load of negroes carried off the Commodore's prize to the astonishment of everybody, until it was found that his barge had been hauling around a basket full of stones hitched on to the rudder. Meanwhile the winners had disappeared in triumph with their cup.

## A NOVEL METHOD OF INSTALLING PROPELLER SHAFTING.

BY COMMANDER HARRIE WEBSTER, U. S. N.

The torpedo boat Shubrick was launched by the builders, the Wm. R. Trigg Company, Richmond, Va., before her propeller shafting had been installed, for several reasons, the principal of which being the otherwise readiness of the vessel long before the contractors for this shafting were able to make delivery, and the desirability of clearing the ways as soon as possible. The launch was made on the last day of October, 1899, but it was March 1900 before the propeller shafting was ready to be put in place, and as Richmond is some hundred miles or so from the nearest dry dock, it became a question of considerable moment touching time and expense, as to whether the long trip and the cost of docking could not be obviated. This question was promptly solved by the builders' determination to simply raise the stern of the Shubrick sufficiently free from the water to enable the work to be done from floats conveniently placed; and the complete success with which the scheme was carried out, together with the slight comparative cost, makes the event well worthy of special notice by shipbuilding and engineering experts. Commonly speaking, the steel ship, large or small, is supposed to be in condition of a single element of a bridge structure, and consequently possessing the ability to withstand suspension at any point within the vertical through the centre of gravity without distortion or danger. This, however, like many another general hypothesis, is only true within very small limits, and if the attempt were made to suspend a steel craft of any considerable dimensions from a point in the keel directly beneath the center of gravity of the vessel considered as a unit, the result would be disastrous. The normal strains to which a floating structure is to be subjected are, as is of course well known, those incident to perfect equability of stress over a large percentage of the exterior area of the floating body, and in addition to its equability is the further advantage of the perfect mobility of the liquid in which the vessel is held in suspension. So far as it is a matter of record, the raising of a torpedo boat from the water for the purpose of carrying on work actually beneath the vessel is an operation which has not been attempted in this country without the aid of a dry dock. The bow of the Shubrick was depressed by the inletting of about 22 tons of water in the forward compartment, facilitating the immersion of the stem and adding to lateral stability during the suspension. The smooth water of the canal also was a favorable condition, but even with security from disturbance on the part of this element, the daring feature of the attempt remains as an illustration of the confidence the builders held in the excellence of the hull work, especially when it is remembered that the hull plating of a torpedo boat is but about ⅛ in. thick, and that the length of the Shubrick is 175 ft.

DIMENSIONS OF THE DERRICK.

| | |
|---|---|
| Length, ft | 53.08 |
| Breadth, ft | 31 |
| Depth, ft | 6.66 |
| Draught, ft., normal | 2 |
| Displacement, at 2 ft. draught, tons | 92 |
| Displacement, with Shubrick hoisted, tons | 137 |
| Deadweight on the derrick float with the Shubrick hoisted, which includes men, shafts, and all tackle, tons | 45 |

The 22 tons of water which was let into the Shubrick was between the stem and bulkhead No. 27. The approximate length of the Shubrick from point of emergence to perpendicular stern line was 62.5 ft., being somewhat more than one-third of her total length. The expense attending this method of installation of shafting is given by the superintendent as follows: 15 men from machine department, $70.97; 20 men from shipyard, $51.35; use of derrick for 17 hours, $110.15—making a total of $322.79. A careful examination make during the period of the vessel's suspension failed to show that any undue strain was imposed on the framing or plating, and the fact that the shafting was emplaced without difficulty was prima facie evidence that such was the case. The angle of the inclination of the scow under the load of the Shubrick was brought almost precisely equal to that of the hull of the torpedo boat, thus rendering the installation of the shafts a comparatively simple matter after the stern of the vessel had been raised. The cost of docking the Shubrick, at Norfolk or Newport News, with incidental expenses due to towing, insurance, and delay in work, and other expenses, was estimated by the contractors as in the neighborhood of $1,000.—Journal of the American Society of Naval Architects.

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No attention is paid to anonymous communications, but the wishes of contributors as to the use of their names will be scrupulously regarded.

CLEVELAND, O., JULY 19, 1900.

A NEW buisness has been just started in California. It takes the form of drilling oil wells in the sea, and is, according to the San Francisco Call, the latest and most remarkable, as well as the most picturesque, as it certainly is a difficult and expensive feature of the great crude oil industry. This new and radical departure had been successfully carried out at Summerland, and there the oil is now pumped from beneath the Pacific Ocean.

A CONTRACT for the reconstruction necessary to convert the auxiliary cruiser Resolute into a transport has been awarded to the Cramps, Philadelphia. The Government will spend about $150,000 in fitting out the Resolute, and it is belived that she will then be fully equipped for the West Indian service. The Resolute was formerly the Yorktown, of the old Dominion line. Being of light draught, she is especially adapted for West Indian waters.

ON June 30, 1899, the total single-track railway mileage in the United States was 189,294.66 miles, an increase during the year of 2,898.34 miles being shown. This increase is greater than for any other year since 1893. The States and Territories which show an increase in mileage in excess of 100 miles are Alabama, Arkansas, Georgia, Louisiana, Michigan, Minnesota, Pennsylvania, Texas, Arizona, New Mexico, and Oklahoma. Practically all of the railway mileage of the country is covered by reports made to the Commission, the amount not covered being 1,759.98 miles, or 0.93 per cent. of the total single-track mileage. The aggregate length of railway mileage, including tracks of all kinds, was 252,364.48 miles. The distribution of this aggregate mileage was as follows: Single track, 189,294.66 miles; second track, 11,546.54 miles; third track, 1,047.37 miles; fourth track, 790.27 miles; yard track and sidings, 49,685.64 miles.

PLANS for a deep waterway to the Gulf of Mexico from Chicago and the upper Mississippi were discussed recently by members of the Western Society of Engineers. James A. Seddons, who has for twenty years made a close study of the phenomena of current, erosion and water supply of the Mississippi, contributed a paper showing the work done by the federal government to date, in attempting to secure deep navigation along the great river. He said that $40,000,000 had been spent and nothing gained except experience. The project to form a great basin at Lake St. Francis at a cost of $32,000,000, and confine there the flood waters of the river, to let loose gradually during low water periods, was advocated by Mr. Seddons. Lyman E. Cooley, who followed Mr. Seddons, advocated also the construction of a dam at Commerce, below St. Louis, for controlling the stage of water above that city in connection with Mr. Seddons' plan for slack water navigation from there to the Gulf.

## PUBLIC SERVICE OF RAILWAYS.

The number of passengers carried during the year ending June 30, 1899 as shown in the annual reports of railways, was 523,176,508, showing an increase for the year of 22,109,827. The number of passengers carried 1 mile, that is, passenger mileage during the year was 14,591,327,613, there being an increase in this item of 1,211,397,609. There was an increase in the density of passenger traffic, as the number of passengers carried 1 mile per mile of line in 1899 was 77,821, and in 1898, 72,462.

The number of tons of freight carried during the year was 959,763,583, an increase of 80,757,276 being shown. The number of tons of freightcarried 1 mile, that is, ton mileage, was 123,667,257,153. The increase in number of tons carried 1 mile was 9,589,680,848. The number of tons carried 1 mile per mile of line was 659,565. These figures show an increase in the density of freight traffic of 41,755 tons carried 1 mile per mile of line.

In the report is inserted a summary of freight traffic analyzed on the basis of a commodity classification, and also a summary indicating in some degree the localization of the origin of railway freight by groups of commodities.

The average revenue per passenger per mile for the year ending June 30, 1899, was 1.925 cents; for the preceding year it was 1.973 cents. The revenue per ton of freight per mile was .724 cent, while for 1898 it was .753 cent. An increase in mileage earnings is shown for both passenger and freight trains. The average cost of running a train 1 mile increased nearly 3 cents as compared with 1898. The percentage of operating expenses to earnings shows a slight decrease as compared with the previous year.

## IRON ORE SHIPMENTS.

Joseph Sellwood takes exceptions to an article in the last issue of the Iron Trade Review wherein it is stated that the amount of ore likely to be shipped down the lakes this year will fall considerably below 20,000,000 tons and that 16,000,000 tons will be nearer the exact figures.

According to the Duluth News-Tribune, Mr. Sellwood says that 750,000 tons have already been shipped all rail this season, while 3,265,888 tons were shipped in May and a conservative estimate for June is 3,200,000, which would bring the total amount up to 7,215,888 by the last of the present month.

"For the sake of making as conservative an estimate as possible," said Mr. Sellwood, "we will concede a reduction of 25 per cent. on what has already been done and place the shipments at 2,500,000 tons a month for the next five months, and we will have 12,500,000 tons. This, added to the total shipments up to the close of the month, will give 19,715,888 tons, but I have no hesitancy in predicting that the amount will be considerably greater than that. It appears to me that the Iron Trade Review has made its estimates without substantial data, and it is very misleading, to say the least."

President Greatsinger, of the Duluth & Iron Range railroad, said last night that the 16,000,000 ton estimate was lower than he would place it, and averred that 18,500,000 would be more accurate. He said: "Why, enough ore has already been sold, which, added to what we know the manufactures are compelled to buy, will bring the total up to the figure I have mentioned. Carnegie will ship his whole quota of ore out of Ely this year, without a doubt. He can't very well get along without it. While it is occasionally heard that furnacemen would be willing to have some revision of the prices on their ore contracts, it is needless to say that such a suggestion wonld not be taken seriously by any seller. Furnacemen made large profits last year, in part at the expense of the ore trade, and the mining companies will insist on taking all that comes from the prices fixed in the latter part of 1899."

From conversation with both Mr. Sellwood and President Greatsinger it would not be at all surprising were this estimate of shipments for 1900 to prove correct: Minnesota ranges, 10,500,000 tons; Gogebic, 3,000,000; Marquette, 3,750,000; Menominee, 3,000,000.

CHICAGO does not seem to have lost any vessel trade by reason of the drainage canal. Her high tunnels and bulging center piers have done more trade diverting than the ditch. Milwaukee, on the other hand, reports an absolute lack of grain cargoes. There is hardly a boat loading cereals there, and the boats are going to Chicago in the hope of getting cargoes. It looks as though Chicago would get boats in spite of endeavoring to destroy her lake traffic interests.

## ON THE USE OF COMPRESSED AIR.

Abridgement of Paper read before the Franklin Institute on "The Practical and Economical Points in Using Compressed Air in Connection with Pneumatic Tools," by James Lowe Pilling, of the Q. & C. Co. Chicago, Ill.

It has been my privilege in connection with my avocation to visit about all the establishments where compressed air is used in the United States and without contradiction, I will say that with very, very few exceptions, I have not seen a properly constructed air plant in my travels.

The theoretical points of air compression have been understood from time immemorial, but the most essential, practical and economical points which are in demand today have not been touched upon, so far as I have been able to ascertain, which fact is proved by the observation cited in the first paragraph.

Compressed air will go as much below its normal temperature in expansion as it goes above it in compression; therefore, the larger the exhaust port and shorter the exhaust passage, the less liability of icing up the tool.

Air compressors: Air compressors are as near perfect as we may expect to see them for years to come. The trouble lies not in the compressor, but the manner in which the compressor is connected to the receiver, and taken therefrom. A receiver is not for an accumulation, as many think; only at the third stage. First, it is for condensing surface; second, to take care of the pulsation of the compressor; third, for an accumulation.

An Upright Receiver: By all means connect discharge pipe from compressor near the top of the receiver; take the outlet to the main line, about one foot from the bottom of the receiver. Have the receiver so placed that the outside atmosphere can circulate around it. Have a blow-off cock with a very short connection at the bottom. If conditions are such that a horizontal receiver must be used, connect discharge from compressor on top of receiver at one end; connect outlet to main line at the other extreme, but as low as possible, as long as it is above the fore and aft line of the receiver.

Why? On a clear day there are eight grains of water to a cubic foot of air, and foreign matter in suspension. Through the compression heat is generated. Heat will always rise. As long as air is above its normal condition in temperature the moisture and ingredients are in suspension. Moist air is a friction; moist steam is a lubricant. It will, therefore, be readily understood what a receiver is for, and why it should be connected up as I have already stated.

If under these conditions the air is still warm as it leaves the receiver, then the receiver is not large enough, or the compressor is too small, or both. (It is often well to place another receiver adjacent to where the most air is needed.) This argument will hold good even if an intercooler is used as on a compound compressor. Precipitate the moisture in your receiver; that is what it is for. By so doing, you will have no trouble with your main line freezing, and you will obtain better results from your pneumatic tools, which are as finely constructed as any piece of mechanism on earth. Treat them as such; give them good, dry air; increase their efficiency by so doing, and lessen their repair bill.

THE earnings of the shipping of the nations of the world for the year 1897 is placed by Mulhall, the eminent statistician, as follows: Great Britain £55,800,000; Germany, £8,300,000; Austria, £1,400,000; Spain, £4,600,000; Sweden, £2,100,000; Denmark, £1,500,000; Belgium £700,000; United States, £3,200,000; Australia, £1,800,000; France, £4,800,000; Russia, £3,000,000; Italy, £2,900,000; Portugal, £400,000; Norway, £5,000,000; Holland, £1,700,000; Greece, £1,200,000; Canada, £3,400,000. This makes a total of £101,800,000, of which £93,400,000 is credited to the European countries. The earnings of British shipping represent more than one-half of the total shipping earnings of the world.

A CABLE conveyor for slag is being used at the copper smelting works at Dollar Bay, Mich., operated by the Lake Superior Smelting Co. The conveyor is about 600 feet long, and the slag is dumped into a swamp, the position of the conveyor being shifted as desired. The four towers are 23 to 28 feet high, built of 60-pound T rails, with sills resting directly upon the ground, no foundations being built, as the towers have to be frequently shifted. The slag pots, of 300 pounds capacity, are carried out by trolleys running on a 3¼ inch endless rope, and are automatically tripped and dumped at the end of the line. Two men will operate the conveyor, while formerly five men were required to carry away the slag pots on hand trucks.

## TO IMPROVE THE ERIE CANAL.

For some years past Mr. G. H. Raymond has been active in urging upon the people of New York state that the Erie canal be improved on adequate lines. The present plan of expending $62,000,000 for a 1,000-ton barge canal from Buffalo to Albany is based practically on Mr. Raymond's suggestion made in 1895, as set forth in the RECORD at that time. The Merchants' Exchange, of Buffalo, has taken up a "campaign of education" in the matter of canal improvement, and we understand will attempt to raise $15,000, at least, for the purpose. Mr. Raymond is also a member of this committee.

A representative of the RECORD had a conversation with Mr. Raymond a few days since in which he presented some ideas in respect to the proposed Erie canal improvement in its bearing on lake traffic which it might be well for our lake interests to consider.

The RECORD representative asked Mr. Raymond wherein the Erie canal improvement would benefit lake traffic interests. He replied: "In my judgment, there is no single class of interests in the United States who are more closely interested in a proper improvement of the Erie canal than those lake interests which may be termed the independent vessel interests.

"These are days of trusts, combinations, etc., whereby the small and independent operator, whatever his line, must accept the terms of the trust that seeks to control his regular business, or he must simply quit the business entirely. There is apparently no middle course. When those interests that now control the great bulk of vessel interests on the lakes elect so to act, as they could easily do, the entire fleet of independent vessels would simply have to hunt for a dock and tie up. There would be no hope for them.

"Naturally, people in such a situation should look around and see what proposition would come the nearest to relieving them in case such a line of action should be decided upon. The only really favorable outlook is in the direction of a large improvement of the Erie canal. If the independent lake interests had a suitable outlet from Buffalo to tide water that could meet rail competition they would stand a very good show of getting traffic on classes of freight that move in such quantities as the large lake boats do not care for, and from ports not having a traffic large enough for the large craft.

"If the Erie canal can be improved for barges of 1,000 tons capacity, as is now hoped, it would make possible such a rate, about one cent a bushel on wheat, as would attract an enormous amount of traffic to the lakes for shipment over it, to the great benefit of the lake interests not now controlled by the great corporations. If any one thing will save the outside lake interests it is the Erie canal.

"The apathy of the people of New York state, to their shame be it said, however, is so great that it will be only by the greatest of efforts, and long continued, that the people will be sufficiently educated and aroused on this problem of adequate canal improvement, that they will ratify it at the polls.

"The Merchants' Exchange, of Buffalo, is to take this matter of educating the people of the state vigorously in hand and make the effort of its life to pass a canal improvement measure. It will require almost two years of steady work in this direction. A large amount of money will be necessary. The business men of Buffalo will respond liberally, but it appears to me that the RECORD could do no better work for the lake interests at large than to urge that those interests assist the Merchants' Exchange in this work.

"Not alone will the large Erie canal act as magnet to increase the eastbound traffic but it will enormously increase the westbound traffic over the canal and the lakes. This traffic is of higher class and pays better rates and would still more contribute to keeping the smaller vessels at work, as the traffic does not move in such large lines that the largest class of vessels would be looking after it so sharply.

"The RECORD has always been active in looking out for the lake interests, and it is to be hoped it will see the necessity of the lake interests assisting in this work."

## FLOATING THE SPARTAN.

The steamer Spartan, after continuous exertions for over a week, was floated from the rocks in Lachine rapids by the wreckers of the Calvin company, Garden Island. It is stated that this is the most skillful wrecking feat ever accomplished on the river St. Lawrence. No more dangerous place exists between Niagara and the sea than the Lachine rapids, and the stern of the Spartan rested in the dangerous whirlpool known as the Boulion Blanc, or White Swells, of the ever-dreaded Verdum channel with its countless rocks and snags.

The method of release may be summed up as follows: A line was first run from the bow of the Spartan to the long pier, or dam, above the water works. Then the veteran rapids man, Aime Guerin, who has been in Calvin's employ over thirty years, working in the rapids sawing timber, etc., with a boat called a challoupe, about thirty feet long with flaring sides, and manned by a picked crew of sturdy Indians, proceeded to coil steel wire lines into the challoupe, and when loaded each Indian grasped the life-line and, with Aime in the bow, a turn of the painter was hitched around the life-line and by releasing the pressure little by little the seething current forced the challoupe with its freight towards the Spartan and the wires were placed on board under the superintendence of Capt. Gilbert Johnston, of the R. & O. Navigation Co.

After a sufficient number of wires were taken out in this manner the other ends of the wire were run to the main shore, over the top of the dam, a distance of nearly half a mile, and there attached, under the supervision of Capt. Tom Bryan, to several purchase blocks. Two light-draft wrecking steamers, the Parthia and William Johnston, were then moored at the upper part of the dam on the inside of it, as no steamer could remain outside of it, and their powerful steam winches, designed expressly for wrecking purposes, were brought into action. Inch by inch, and foot by foot the Spartan was eventually dragged from the rocks and released.

## A CANAL AT OGDENSBURG.

"Negotiations are now under way," says Vice-President Zummerman of the Massena Power Co., "which, if they are successfully closed, will dispose of the whole output of power as soon as the plant is ready for operation. Of course the company cannot afford to let the plant lie idle after it is completed and factories will no doubt follow close upon its completion. We are receiving applications from many concerns in different parts of the world. Big, reliable electric powers are in demand now, due largely to new discoveries, and there is no doubt but what every horse-power developed will find ready sale.

"There is reason to believe that our power will be used largely in the comparatively new business of manufacturing chemical products by electricity. A vast amount of heat and power is required in all the electro chemical manufacturing industries. There are many commercial industries of this kind, such as the production of alkali chlorine from the decomposition of salt, carbides, etc. Nitrate is now made by electricity, the nitrogen being taken from the atmosphere.

"There was a gentleman here this week looking over the plant with a view to establishing a factory and buying power for the manufacture of emery wheels by means of an electric furnace. Next week another man is to be here on a like mission, his business being the manufacture of cyanide by electricity. This latter is a newly discovered process.

"We are now trying to interest the U. S. government in Massena. If it will co-operate the Massena canal will be used for shipping as well as power producing. The government has been requested to deepen the channel of the Grasse river to a depth of 14 feet. If this is done then a lock will be put into the canal at the power-house end and vessels may pass out of the St. Lawrence, into the Grasse and via the canal back into the big river, thus escaping the Long Sault rapids. This would be the beginning of a great system of American canals on the St. Lawrence. Two more would have to be built, one near Ogdensburg, I believe. The War Department has the matter under consideration.

## COAL DUST FOR FUEL.

An exchange says that at the Wester Refinery, Amsterdam (where 80,000 tons of suger are produced yearly,) a single Cornish boiler has been working continuously night and day for two years, and five others for the last twelve months with coal dust fuel supplied by Freitag's automatic feeder, The coal is ground as required in a mill attached to the fire box and delivered directly into it; consequently, there is no dust in the boiler house. Twenty-two boilers are employed; in 1887 they were fitted with Leache's automatic stoker, which provides an even and regular supply of coal. Freitag has retained this to supply his mills, two of which are fixed to each boiler. The sides of the mills are transparent, and the front works on a hinge to admit of the removal of the revolving screen, pulverizer, and other parts liable to wear. The pulverizer consists of a solid steel collar fixed on a revolving shaft, to which are bolted and keyed four projecting arms faced with chilled-steel removable bits. The shaft is driven by belting or an electro-motor. Immediately below the delivery pipes is a series of orifices which admit air along with the coal dust, and below these again is a door through which the ash and slag are removed twice daily.

The boilers are Cornish, 7 feet 10½ inches in diameter, 32 feet long, with two 2 feet 8½ inch flues and 1,033 superficial feet of heating surface, working at a pressure of 8 atmospheres; temperature of feed-water, 40 degrees C. The gasses leaving the flues register from 270 to 350 degrees C., and contain from 16 to 20 per cent. of carbonic oxide; 1,164 to 1,712 pounds of steam are generated per foot of heating surface per hour, and the mill makes 1,500 revolutions per minute with an expenditure of 2.4 horse-power. These results are compiled from the register of daily work and not from experiments. All parts of the machine are easy of access, and so light that one man can handle them. The system is applicable to all classes of boilers, both marine and locomotive.

## PERSONAL.

Mr. C. O. Brunner, treasurer of the Bethlehem Iron Co. and Bethlehem Steel Co., completed, on July 12, his fortieth year of service. The occasion was marked by the presentation to Mr. Brunner of a silver pitcher and salver and a handsome cane from his fellow members of the staff of the two companies.

## LETTERS AT DETROIT MARINE POST OFFICE.

July 20, 1900.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Arnold, Jas., Algeria
Brunell, J. R., S. J. Tilden
Bingham, Burt, Niagara
Braun, John
Brown, Jas. T.
Bunce, Geo. M., Edw. Smith No. 2
Crawford, Jas. M.
Cusack, Mrs. Ella M.
Corsant, Robt. M., Vail
Dingwell, J., Progress
Davis, Mrs. F. H. B., bge. Reis
Degan, Frank, Lyon
Emeigh, J. H., Norris
Enquist, Louis
Fay, Brayton
Hussett, Willie
Hassett, Frank
Holton, Mrs. Annie
Hamilton, R. A.
Henry, James
Johnson, Clarence
Johnson, John C.
Jakes, Albert
Keenan, George, Admiral
La Rush, Anthony
Locke, C.
Loughlin, W. F.
Meyers, Charlie, Volunteer
Merrill, Guy, Norwalk
Monzo, Fred L.
Mulholland, Thomas, Huron City
Minnie, L. C.
Moderson, Chas. W.
Manders, George
Morrison, James
McClellan, John, Geo. Stephenson
McGannon, W. P., Murphy
McCue, J. H.
Macfarlane, A. A.
Niemiec, Antoni
O'Brien, Jos. J.
Phillips, Geo., City of Cleveland, 2
Peters, Elwyn
Rahal, Philip J.
Rice, Mrs. H. R.
Raymond, F. A.
Stevens, Jud H.
Sinclair, Dougald, Ohio
Stoddard, James
Seeber, F. B.
Smiley, E. D., Geo. Stone
Tripp, Arthur, Norwalk
Vallean, David
Warhof, John, Alta
Williams, E. P.
Walker, Roy
Warner, Herbert
Wagner, Robt. E.
Whitesman, Chas.
Wood, E. H. (Mrs.)
Welsh, Michael, Iron King
Wendt, Otto E.
Williams, A. P., Progress

FOURTH CLASS.

Dupuis, Alfred, Senator

F. B. DICKERSON, Postmaster.

## LUMBER DISCHARGING SCALE.

The following resolution was adopted at the annual meeting of the International Longshoremen's Assoication at Duluth:

"Whereas, the lumber unloaders from Port Huron to the lower lake ports have card rates that are not uniform in price, and:

Whereas, the lumber carriers are persistently demanding that a scale for lumber unloaning be established. Therefore be it:

Resolved that the lumber unloaders from Port Huron to the extreme lower lake ports adopt a uniform scale; and be it further

Resolved that the president of this convention appoint a special committee of one from each of the lumber unloading locals which are represented in this convention for the purpose of presenting to this body a uniform scale which will be satisfactory to the lumber unloading locals represented."

**Truscott**

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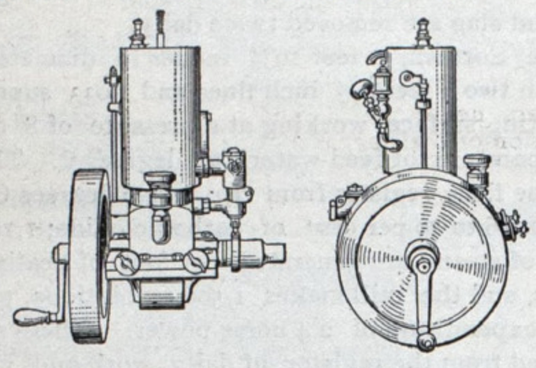

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## OBITUARY NOTICE.

CAPT. J. DONNELLY, SR.

*Special from Kingston, Ont.*

After an illness extending over some weeks, Capt. John Donnelly, Sr., president of the Donnelly Salvage and Wrecking Co., Kingston, Ont., died last week at his residence, surrounded by all his family, and deeply mourned by all classes of the community. Capt. Donnelly was born in Armagh, Ireland, on the 14th day of February, 1835, and came to Kingston with his father and mother on the 3rd of August, 1846. The family moved in 1848 to Garden Island, where most of his life was spent in the employ of Calvin & Breck, Calvin & Son, and the Calvin Co. Capt. Donelly served as a sailor up to 1858, engaged for the most part in the timber trade from the upper lakes to Garden Island.

In 1858 Capt. Donelly's wrecking operations began, with the rescue of the steamer Hercules, a side-wheel tug, owned by Calvin and Breck, the boilers of which exploded on the 8th of October, 1858, while the tug was endeavoring to tow a vessel up the Rapids De Plat. Capt. Donnelly just before the accident remained off the boat a trip, and his place was taken by Dexter Calvin, brother of Hiram A. Calvin of Garden Island, who with six others, met death when the boilers exploded. From that time until within the last few years, Capt. Donnelly has assisted, and has had charge of more wrecking operations, than any other man on the inland waters, with such signal success, that his name is known on the inland waters for a quarter of a century past, as one who has never failed in wrecking operations he has undertaken. He raised the propeller Brookes, sunk in 14 fathoms, three miles from the docks on Lake Ontario, all the crew of this propeller were lost at the time of the accident. He raised the steamer Magnet and cargo, commanded by Capt. Frank Patterson, formerly of this city, from where she was sunk in 108 feet of water, abreast of Howe Island. This propeller was sunk by collision with the steamer Bay State. He has taken all of the boats of the Western Division of the Richelieu line out of critical positions in the rapids several times, and among others, the Corsican, Magnet, Algerian, Corinthian, Passport, and Bohemian, and his work has not been confined to inland vessels alone, as he raised the steamer Vicksburg of the Dominion line, sunk below Isle Verte, in the Gulf of St. Lawrence, and the S. S. France of the National line, sunk in the river below Montreal.

When Capt. Donnelly first started in the wrecking business, there were no such wrecking appliances as are to be found in use to-day, a good deal of the work was done with the crudest sort of tools, but he had such a thorough knowledge of his business, combined with immense energy and ability to handle men, that his work was always successful, and many inland insurance companies owe their prosperity, in marine business, to the results of his labor. For very many years Capt. Donnelly has been a sufferer from a stricture of the stomach, caused originally by having become chilled in a leaky diving dress, while working under water, and this was the cause of his death. He was twice married, and is survived by his widow and seven children, Thomas, Chief Inspector for Lloyds, John, of the Donnelly Salvage and Wrecking Co., Minnie, wife of Capt. B. A. Booth, jr., Sanford, engineer of the Collingwood dry-dock plant; Maggie, wife of C. McCormick of Toronto, and Foster and Luther of this city. The only other child Robert, a youth of 16 years, was drowned at Port Stanley, when the schooner Sweden was lost, of which Capt. Donelly was part owner. He was a member of Elysian Lodge, No. 212, A. F. & A. M., Garden Island, and of Ancient Frontenac and Cataraqui Chapter Royal Arch Masons, and also a member of the Royal Black Preceptory of the Orange Order. In politics, he was a life long conservative. The late Capt. Donnelly was a man who always made friends, no matter where he went.

## VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

| CITIES WHERE STORED. | WHEAT. Bushels. | CORN. Bushels. | OATS. Bushels. | RYE. Bushels. | BARLEY Bushels. |
|---|---|---|---|---|---|
| Buffalo | 1,762,000 | 493,000 | 301,000 | ..... | 239,000 |
| Chicago | 10,812,000 | 4,810,000 | 1,845,000 | 303,000 | ..... |
| Detroit | 207,000 | 56,000 | 3,000 | 5,000 | ..... |
| Duluth | 10,309,000 | 378,000 | 333,000 | 24,000 | 45,000 |
| Fort William, Ont. | 1,495,000 | ..... | ..... | ..... | ..... |
| Milwaukee | 1,008,000 | 414,000 | 480,000 | 1,000 | 11,000 |
| Port Arthur, Ont. | 98,000 | ..... | ..... | ..... | ..... |
| Toledo | 171,000 | 472,000 | 159,000 | 2,000 | ..... |
| Toronto | 52,000 | ..... | 11,000 | ..... | 44,000 |
| On Canals | 58,000 | 808,000 | 221,000 | 31,000 | 20,000 |
| On Lakes | 1,090,000 | 2,332,000 | 1,080,000 | ..... | 60,000 |
| On Miss. River | ..... | 132,000 | ..... | ..... | ..... |
| Grand Total | 46,081,000 | 13,608,000 | 7,144,000 | 567,000 | 686,000 |
| Corresponding Date, 1899 | 34,552,000 | 12,634,000 | 4,793,000 | 731,000 | 698,000 |
| Increase | ..... | 420,000 | ..... | ..... | 18,000 |
| Decrease | 796,000 | ..... | 2,000 | 29,000 | ..... |

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

## THE LUBRICANT BETWEEN.

The Dixon Crucible Co., of Jersey City, N. J., in a pamphlet just issued, make a few pertinent and practical remarks upon lubrication such as are always of interest and value to the extensive user of machinery, and ought to be of proportinate value to all users of machinery.

It is sometimes said that all men are wrong about something. A few men have found out that the coal they burn at one end of their plant, and the power they get at the other depends on the oil they use between; the rest treat oil as a trifle. A few men have also found out that the addition of 10 to 15 per cent. of flake graphite to the oil or grease used will enable the oil or grease to do several times more work. Other men are finding this out more slowly. A few simply do not care.

A good lubricant is a trifle as to its cost, but it is not a trifle as to consequences. Consider what a lubricant is for —to save power in machinery. If the cost of a lubricant were one hundred times more, we would use it, but we would also study it. Even then the true question would be, not what lubricant costs least, but lubricant saves most of power and machinery? The magnitude of lost power in machinery is variable; it is always large. It may, probably, be fairly estimated that one-half the power expended in the average case, whether in mill or shop, is wasted in lost work, being consumed in overcoming the friction of surfaces. The real value of a lubricant to the user depends upon the value of power saved by its use. To a large user of power an inefficient lubrication means enormous waste of power and costs for repairs. Practical experience is far superior to theory, and while it has been well demonstrated that an oil or grease is necessary for saving power and preventing wear, it has been just as thoroughly demonstrated that Dixon's Pure Flake Graphite is the only solid lubricant that largely enhances the lubricating value of oils and greases. Furthermore, where this graphite is used a cheaper or lower grade of oil or grease can be used and the expense of lubrication reduced as well as power saved.

## EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, in their weekly freight report, state as follows:

Although the volume of charters during the week has been greater than that of the preceding one, yet the demand at present for tonnage is by no means brisk. The steady advance in grain prices, especially maize has caused an extensive decline in berth rates which will, for the present, at least, seriously affect rates on full cargo grain tonage. Whilst there are no pressing requirements for tonnage to load timber, still charterers are showing somewhat more interest and with the limited supply of tonnage available for August loading, it is likely that an advance in these rates of freight may follow. With the exception of an improved demand for time charter steamers for Government account, the market is devoid of any special features.

Sail tonnage is scarce, hence business is restricted and rates remain firm. We do not know of any particular branch of business which offers the strongest feature unless it be the trade in lumber from the Gulf to South America and in timber to Europe, the demand for which, though not lively is increasing and may cause a futher advance of rates ere long.

In case oil to the East nothing has beeu done, except one charter of a wooden vessel to Manila at 28c per case, which rate is certainly a good proof of the strength of the market.

## NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DISTRICT,
DETROIT, MICH., July 14th, 1900.

As published in Notice to Mariners, Light-House Board No. 99, of 1900, July 5, 1900, the following-named gas buoys in the St. Mary's river, have this day been changed from white lights to red, to correspond with color of the buoys and to indicate on which side they must be passed; the characteristic of each of the lights is fixed red 10 seconds, eclipse 10 seconds.

Dark Hole Gas Buoy No. 24.
Vidal Shoal Channel, N. side, Gas. Buoy No. 90 and 92.
Middle Ground Gas Buoy No. 98.
Gros Cap Reef Gas Buoy No. 106.

By order of the Light-House Board:

J. C. WILSON,
Commander, U. S. Navy, Inspector 11th Light-House Dist.

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UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—WISCONSIN AND MINNESOTA.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., July 14, 1900.

ALLOUEZ, SUPERIOR, AND ST. LOUIS BAYS—POST LIGHTS.

Notice is hereby given that, on or about July 15, 1900, the following changes will be made in existing post lights in Superior and St. Louis bays, in order that white lights on black structures will be found on the port hand and red lights on red structures on the starboard hand of channels when entered from Lake Superior.

Quebec Channel Post Light (No. 374), will be changed from red to white.

Superior Bay Channel (Lower) Post Light (No. 375), will be changed from white to red and structure will be painted red.

Superior Bay Channel (Lower Middle) Post Light (No. 376), will be changed from white to red and its structure will be painted red. This light will thereafter be known as Superior Bay Channel (Upper) Post Light.

St. Louis Bay North Channel, East Range (Front) Post Light, No. 383, will be changed from white to red and its structure will be painted red.

St. Louis Bay North Channel, West Range, (front) Post Light (No. 385), will be changed from white to red and its structure will be painted red.

St. Louis Bay South Channel, West Range, (Front) Post Light (No. 387), will be changed from white to red and its structure will be painted red.

---

Superior Bay Channel (Upper Middle) Post Light (No. 377), will, on the same date, be moved about 1,000 feet to the southward and eastward and re-established, 13 feet above the water, on a cluster of black piles with platform and upright with white star daymark, on the southeasterly side of the junction of the Superior Bay and Superior Front Channels. This light will thereafter be known as Junction Post Light.

---

Superior Bay Channel (Upper) Post Light (No. 378), will be discontinued on the same date.

Connors Point and Rice Point Range Post Lights (Nos. 379, 380, and 381).—On the same date the three lights now forming these ranges will be discontinued.

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On the same date the following-named new post lights will be established in Allouez and Superior bays:

Allouez Bay Post Light, No. 1 (after No. 373).—A fixed white post-lantern light, 13 feet above the water, on a cluster of black piles with platform and upright with white star daymark, in 5 feet of water on the northeasterly side of the improved Allouez Bay Channel, opposite the N. W. Coal Ry. Coal Dock, and about 1,500 feet S. by W. from Superior Pierhead Range Rear Light.

Superior Harbor Basin Post Light, No. 2 (after No. 377).—A fixed red post-lantern light, 13 feet above the water, on a cluster of red piles with platform and upright with white star daymark, in 5 feet of water on the northeasterly side of the Superior Harbor Basin Channel, and about 1,600 feet S.W. ½ S. from Minnesota Point (discontinued) Light-House.

Superior Front Channel Post Light, No. 4 (after No. 377).—A fixed red post-lantern light, 13 feet above the water, on a cluster of red piles with platform and upright with white star day-mark, in 7 feet of water on the northeasterly side of Superior Front Channel at its junction with Superior Basin Channel, opposite the N. P. Dock, and about 2,200 feet northwesterly from Superior Harbor Basin Post Light, No. 2.

Superior Front Channel Post Light, No. 6, (after No. 377).—A fixed red post-lantern light, 13 feet above the water on a cluster of red piles with platform and upright with white star daymark, in 9 feet of water on the northeasterly side of Superior Front Channel, and about 5,100 feet northwesterly from Superior Front Channel Post Light, No. 4.

Superior Front Channel, Post Light, No. 1 (after No. 377.)—A fixed white post-lantern light, 13 feet above the water, on a cluster of black piles with platform and upright with white star daymark, in 8 feet of water on the southwesterly side of the channel, at the point where the channel narrows to 200 feet, off Conners Point, and about 5,400 feet northwesterly from Junction Post Light.

Rice Point Channel Post Light, No. 3. (after No. 389.)—A fixed white post-lantern light, 13 feet above the water, on a cluster of black piles with platform and upright with white star daymark, in 8 feet of water on the easterly side of the channel, at the junction of the Duluth Harbor Basin Channel with the Rice Point Channel, and about 800 feet S.E. by E. ½ E. from Ohio Central Coal Dock Post Light.

Rice Point Channel Range (Front) Post Light, No. 5 (after No. 389).—A fixed white post-lantern light, 13 feet above the water, on a cluster of black piles with platform and upright with white star daymark, in 7 feet of water on the easterly side of the turn from the Rice Point Channel into East Gate Basin, and on the prolongation of the axis of Rice Point Channel.

Rice Point Channel Range (Rear) Post Light (after No. 389.)—A fixed red post-lantern light, 18 feet above the water, on a cluster of red piles with platform and upright with white star daymark, in 7 feet of water, on the prolongation of the axis of the Rice Point Channel, and about 1,000 feet S.S.E. ½ E. in rear of the preceding.

East Gate Basin Post Light, No. 7 (after No. 389)—A fixed white post-lantern light, 13 feet above the water, on a cluster of black piles with platform and upright with white star daymark, in 7 feet of water on the easterly side of East Gate Basin, and about 1,700 feet E.N.E. ½ E. from the draw-pier in the center of The Gate.

By order of the Light-House Board.

FRANCIS J. HIGGINSON,
Rear Admiral, U. S. N., Chairman.

---

IT is found by our vessel owners that the class of boys turned out as graduates of the schoolship St. Mary's and the like are not, as a rule, good for much to man other vessels with. They are not trained in the ways of the merchant marine, and that is the whole trouble. The leisurely, methodical, lots-of-men-for-the-job style of the schoolship and man-of-war does not comport with the ideas of the merchant marine master. In fact, it is said, the boys from the St. Mary's and all other schoolships are neither merchant sailors nor man-'o-war's men, because they have been trained by naval men in naval fashion for the merchant service, which is a totally different thing. What will remedy this state of affairs? No one seems to know.—Ex.

## SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD).

Burden of Proof.—Where it is shown in an action on a valued insurance policy that goods of the general description of those contained in plaintiff's bills of lading were actually on the vessel lost by a peril insured against, the burden is on the insurance company to show that all the goods on which the valuation stated in the policy was based were not actually shipped. Voisin vs. Providence Washington Ins. Co., 65 N. Y. Supp. 333.

Demurrage—Delay due to Negligence of Charterer.—Where charterers neglected to advise their agents at the port of destination of their agreement to attend to the entering of the ship at the custom house upon her arrival, by reason of which such agents refused to act, and a delay of three days was caused in having the ship entered, the owners were entitled to include such days in the lay days allowed by the charter for discharging. Elmslie et al. vs. Hagar et al., 101 Fed. Rep. (U. S.) 840.

Marine Insurance—Seaworthiness.—A vessel whose cargo was insured was without metal sheathing of any kind. It remained in the Gulf of Mexico four months before sailing for New York. On its way to New York it was caught in a storm and wrecked and abandoned, and when picked up shortly afterwards it was found badly worm-eaten. The vessel was in a seaworthy condition prior to its arrival in the Gulf of Mexico. A leak sprung in the vessel just previous to its abandonment was not shown to be due to its worm-eaten condition. It was still afloat when taken up about two weeks after it was abandoned. There was evidence that a vessel badly worm-eaten is not necessarily unseaworthy. Held, that the question as to whether the vessel was seaworthy at the commencement of its voyage is for the jury. Voisin vs. Providence Washington Ins. Co., 65 N. Y. Supp. 333.

Shipping—Injury to Stevedore—Liability of Vessel.—Libelant was a stevedore in the employ of a contractor engaged in loading a portion of a ship, while a seperate contractor was loading a different portion. The ship had furnished libelant and those with whom he worked a safe place in which to work and a safe passage thereto, which libelant had used; but, coming out of the hold, where he was at work during the night, he started to go along the deck upon the other side of the ship, which was not intended to be used as a passage and had been obstructed, and by reason of the darkness fell through an open hatchway, which had been left unguarded by employes of the other contractor, and was injured. The hatchway was in the usual place, and the libelant had been employed on the ship for many years. Held, that the ship was guilty of no negligence which rendered it liable for the injury, the proximate cause of which was libelant's own negligence. 101 Fed. Rep. (U. S.) 596.

Defenses—Conspiracy.—The consignee of a cargo of goods assigned the bills of lading to another, who undertook to pay a large sum of money therefor. The assignee of the bills insured the goods, taking out a valued policy. It afterwards appeared that the bills were drawn for from 50 to 60 per cent. more than was actually shipped, which the evidence tended to show was the result of a conspiracy between the captain of the vessel and the one who chartered it to obtain bills of lading for a larger amount than was loaded on the ship, and then lose it, and thus defraud insurance companies. The assignee of the bills had no knowledge of the conspiracy when he obtained the insurance, but acted in good faith. It is not shown that the consignor of the goods was in any way connected with the conspiracy. Held, that the insurance was valid to the extent that goods were actually shipped, and that the insured was entitled to recover the proportion of the sum insured that the goods shipped bore to the goods described in the bills of lading. Voisin vs. Providence Washington Ins. Co., 65 N. Y. Supp. 333.

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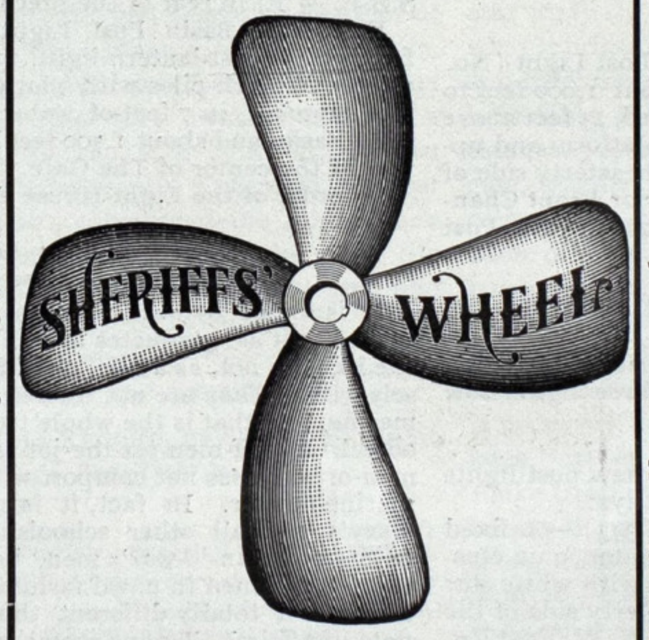


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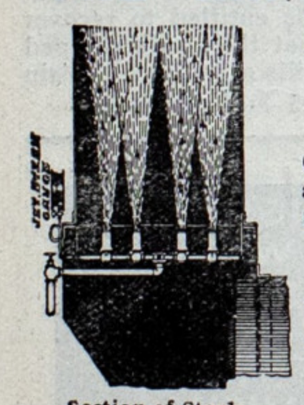


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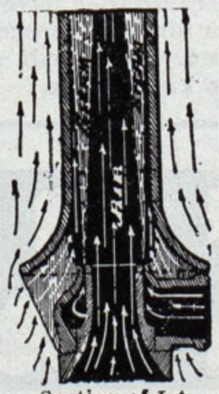


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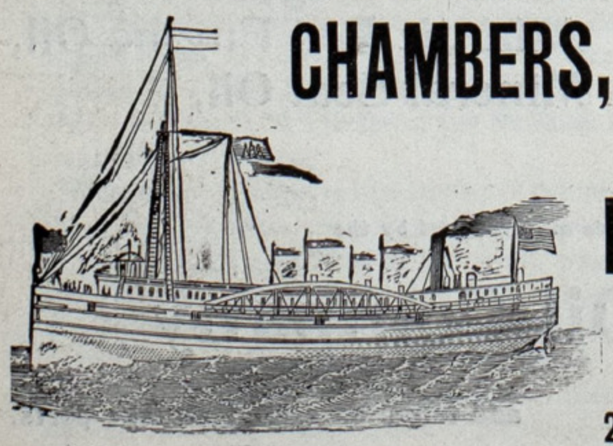

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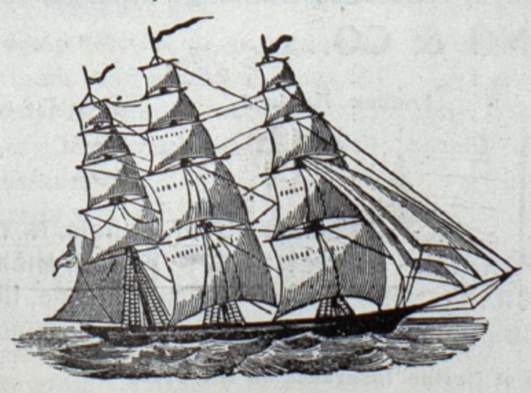

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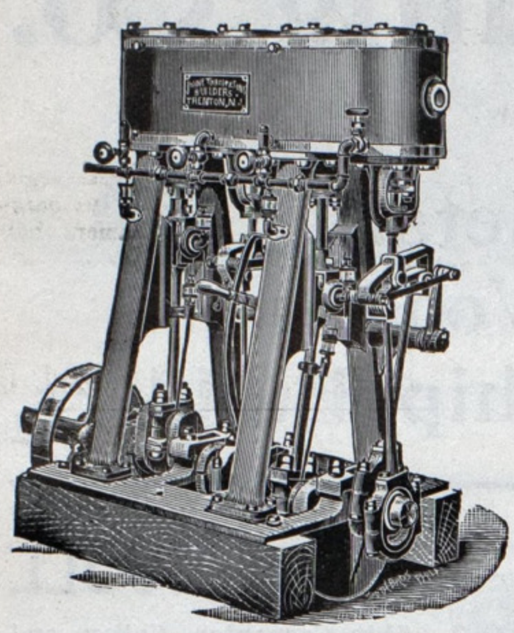

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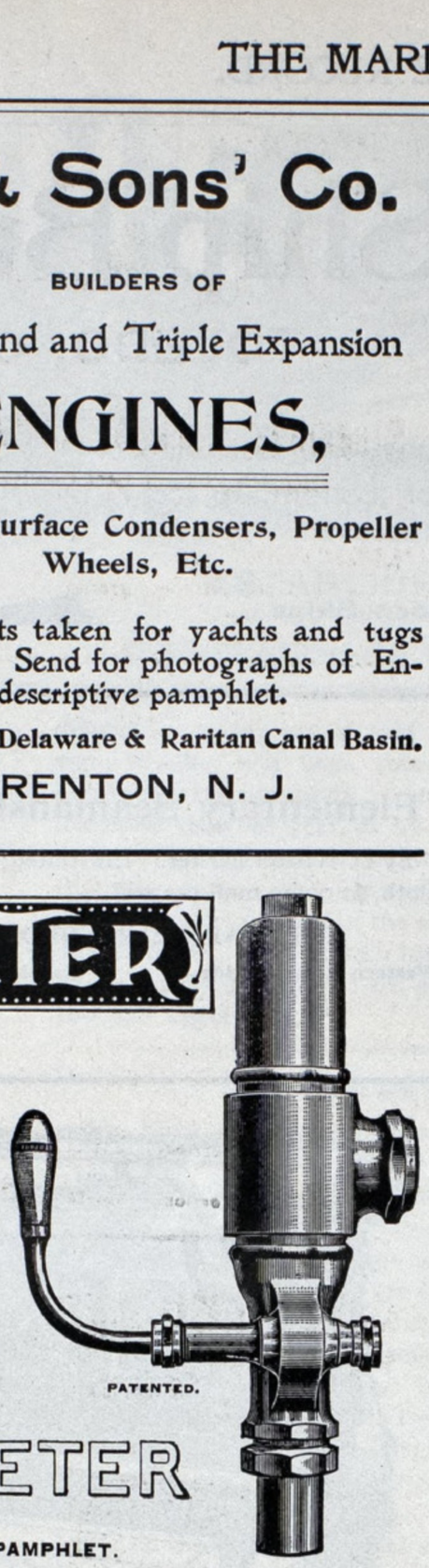

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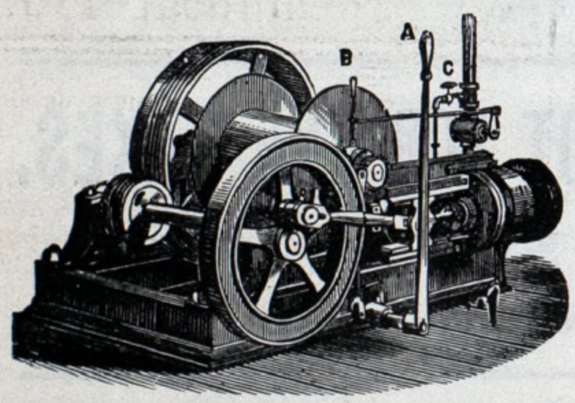


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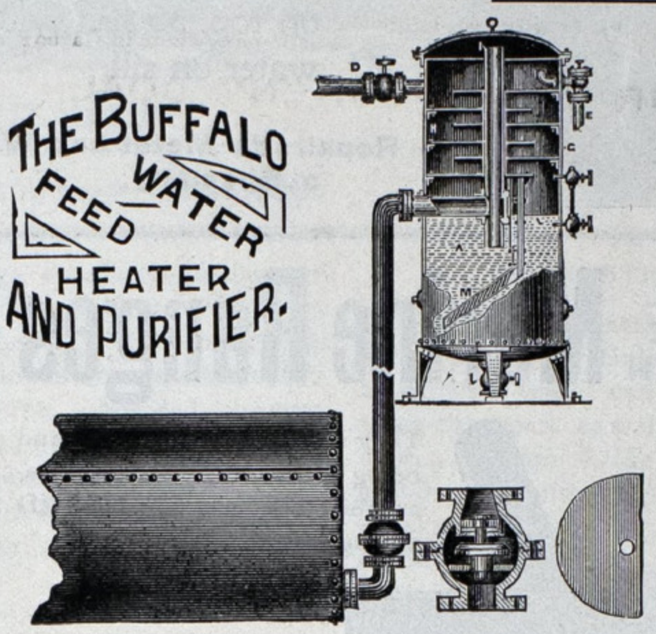

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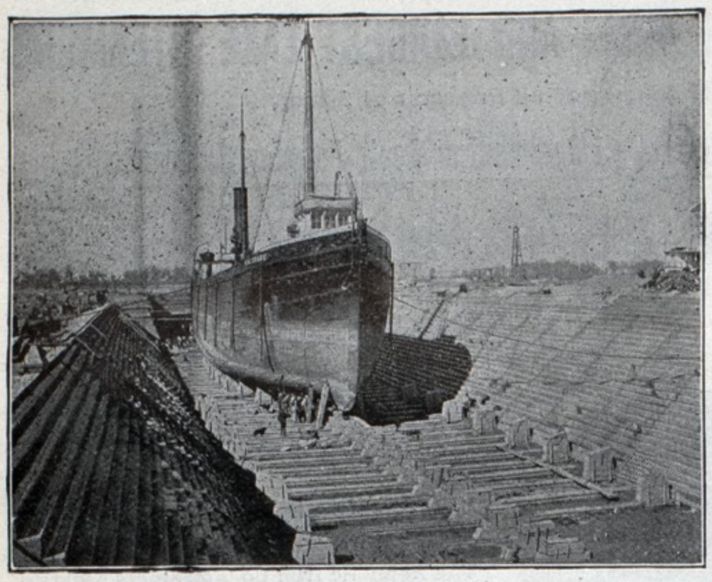

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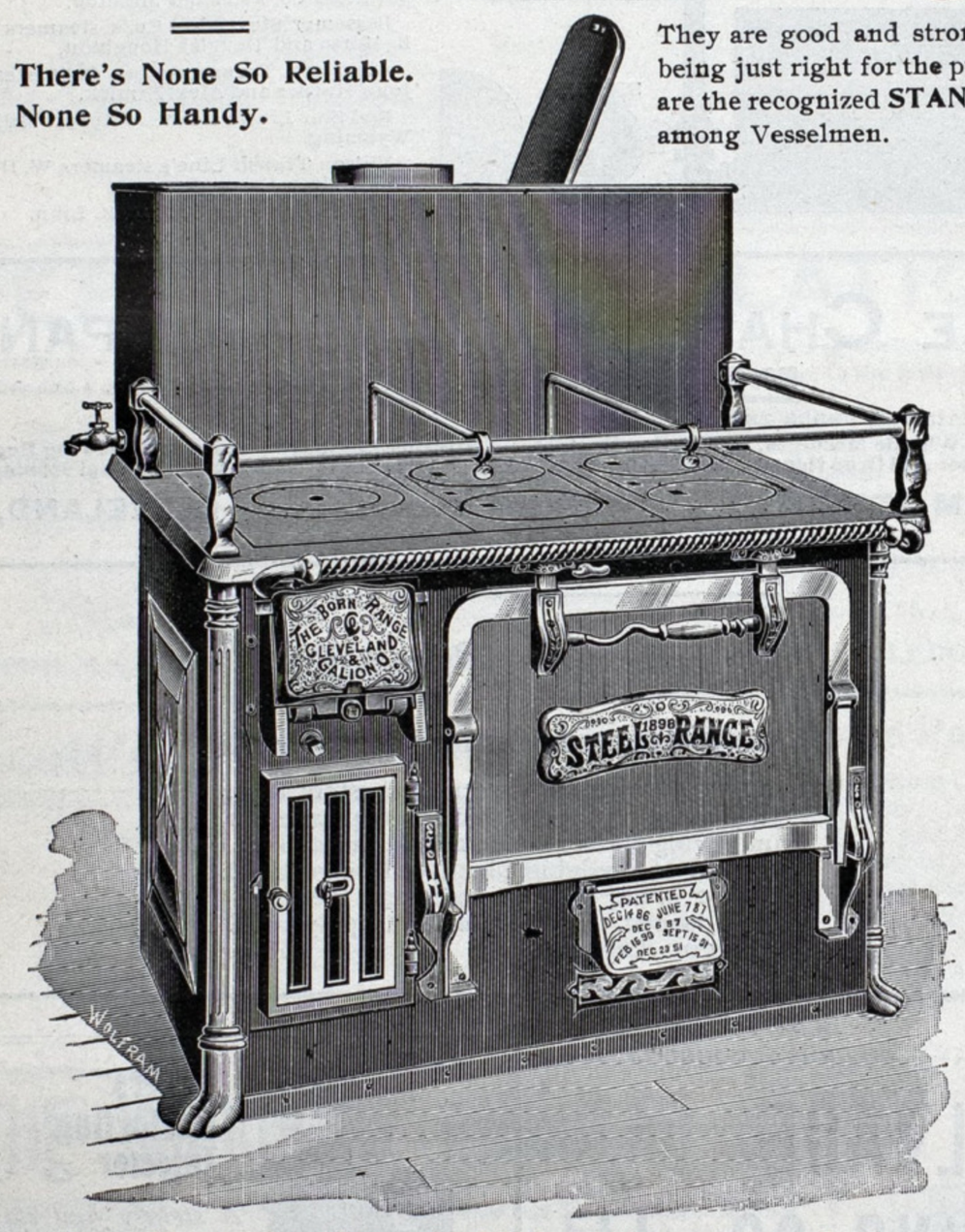


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